Screening Composite Mediascapes: Materiality and Mediatised Space in Contemporary Cinema

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A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy in Media, Film and Television, the University of Auckland, 2018.

Abstract

This thesis examines the experience of inhabiting composite material/mediatised space through the lens of contemporary cinema. More specifically, it explores how films that parallel the increasing prominence of ubiquitous media and augmented reality technologies in real life offer fresh approaches to issues of embodiment, materiality and subjectivity that differ from those offered by a set of earlier and well-analysed science fiction narratives, exemplified by *The Matrix* (The Wachowski Siblings, 1999), which used cyberspace as their defining metaphor. While some of the films analysed here directly address technology, I contend that even those that do not explicitly allude to ubiquitous media explore composite, layered spaces through their usage of elements such as colour, symbolic graphics and music. These films offer a vision of a composite space characterised less by parallel levels of reality, associated with a binary dualism between body and mind, than by intertwined layers of embodied material and mediatised space; as such these more recent films require scholarly attention in order to revisit and update existing analysis of cinematic remediation of contemporary mediated experience. The films collectively demonstrate the characteristics required to inhabit and negotiate composite layered spaces successfully, such as the ability to distribute one's subjectivity between several perceptual channels and to multiply one's self across spaces and networks whilst maintaining a sense of cohesive bodily and subjective integrity. The thesis argues that these films approach the issue of how composite material/mediatised spaces may provide a liberating opportunity to extend one's spatial agency and thus have more control over the mental negotiation of material/mediatised environments, but may conversely threaten agency as users' proprioceptive/digital subjectivity becomes fragmented. In this way, composite space may subsume mental and bodily agency, even whilst offering the promise of complete customisation and personalisation of one's environment. The films analysed offer diverse and contradictory perspectives on this issue. The thesis is made up of close textual analysis of a range of mostly twenty-first century films sourced from both science fiction and other diverse genres, which are unified by their focus upon the potential of composite space to extend and/or fragment bodily and subjective agency.

Acknowledgements

Most importantly, I must acknowledge my tireless main supervisor, Dr Allan Cameron, for his suggestions, questions and rigorous constructive criticism, as well as his patience and kindness. Thank you also to my associate supervisor Dr Misha Kavka, for her valuable insight.

I am grateful for the many thesis-related, and, equally important, unrelated conversations with my talented PhD colleagues and the inspiring staff members in the disciplinary area of Media and Communication in the School of Social Sciences, University of Auckland. Thank you in particular to Dr Jenny Stuemer and Carmen Spanò for their wisdom, humour and friendship.

I would like to thank my partner, Adrian Kinnaird, for his love, care and emotional support during both stressful and joyous times. I must thank my father, John Kirby, for introducing me to the joys of cinema at a young age, and my mother, Linda Kirby, for her sage advice and unconditional support. Finally, thank you to my network of trusted friends, especially Laura Bell, Gina Swart, Kate Steel, Jason Conran, Alice Cheng, Rita Enari, Alma Jakupovic, Katherine Rees, Aliesha Rowe and Kirsty Edmiston, for their unwavering faith in me and for much-needed distractions from academic pursuits.

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Introduction: Theorising Composite Mediascapes in Contemporary Film

During the first two decades of the twenty-first century our experiences of mediatised space have profoundly evolved as ubiquitous media have complicated distinctions between abstract cyberspace and material environments, causing reassessments of the concepts of embodiment and presence. While the promotional rhetoric surrounding new and improved smart devices have unsurprisingly emphasised the ability to customise and control one's personal physical and mental space with sanguine enthusiasm, cinema has offered a more implicit and ambiguous exploration of contemporary spatial relationships and their impact upon notions of bodily agency, selfhood and physicality. In this way, cinema provides a lens, or window, through which to examine our place in mediatised space. Anne Friedberg writes that the film screen functions as a "virtual window" (*The Virtual Window* 151). This window looks out on a space that possesses its own "materiality and a reality but of a different kind, a second-order materiality, liminally immaterial" (11). This virtual space of cinema therefore represents not a copy of the material world "but a transfer – more like metaphor – from one plane of meaning and appearance to another" (11). The following thesis therefore examines a series of films that remediate contemporary relationships between material and mediated virtual space in the lived off-screen world,[1] translating these relationships into cinematic 'mediaspaces' whose aesthetic properties mirror and/or project heightened visions of composite material/mediated spaces. By examining the articulation of space in contemporary cinema, this thesis explores how popular culture imagines, projects and represents the increasingly mediated, and increasingly composite, spaces that we inhabit. More specifically, I demonstrate how these films construct on-screen cinematic spaces whose properties are shaped by relationships between media forms and physical space, thus offering insights into how one might best inhabit these composite spaces. The films collectively demonstrate the characteristics required to negotiate composite layered spaces successfully, such as the ability to distribute one's subjectivity between several perceptual channels and the ability to multiply one's self across spaces and networks whilst maintaining a sense of cohesive bodily and subjective integrity. The thesis frequently addresses the issue of agency, which I define as encompassing both the straightforward ability to control one's actions and movements within a material and/or digital environment and the more complex capacity to make choices about the spaces one inhabits and how one experiences these environments subjectively and perceptually. I argue that the films analysed approach the issue of how

[1]Of course, all on-screen cinematic spaces are inherently "virtual" but my focus is not primarily with the ontology of the cinematic image itself; rather I am concerned with how cinematic aesthetics mirror the ontology of composite material/virtual spaces from lived, or projected, experience.

composite material/mediatised spaces may provide a liberating opportunity to extend one's spatial agency and thus have more control over the mental negotiation of material/mediatised environments, but may conversely threaten agency if navigated unsuccessfully as users' proprioceptive/digital subjectivity becomes fragmented. In this way, composite space may subsume mental and bodily agency, even whilst offering the promise of complete customisation and personalisation of one's environment.

In order to conceptualise these cinematic spaces that draw from the logics and aesthetics of media forms, I borrow but significantly adapt social-cultural anthropologist Arjun Appadurai's notion of the 'mediascape.' Appadurai uses the term mediascape to describe both "the distribution of the electronic capabilities to produce and disseminate information (newspapers, magazines, television stations and film production studios)…and…the images of the world created by these media" (9). The mediascape thus encapsulates both the variety and range of media and the impression of the world that these media produce for audiences (9). Appadurai contends that these mediascapes have an ontological function because they "tend to be image-centred, narrative-based accounts of strips of reality" that provide an image of lived realities, times and geographical places (9). It is this aspect of Appadurai's theory that relates most directly to my invocation of the term mediascape: the cinematic worlds depicted in the films examined in this thesis incorporate mediated relationships between the material and the virtual into their spatial geography and ontological properties, thus shaping their realities in the image of media.

In this way, Appadurai's theorisation of a process in which audiences imagine particular realities based upon the images that mediascapes provide can be adapted to examine the way that cinema projects mediated spaces.[2] This thesis conceptualises cinematic 'mediascapes' as films where the 'reality' of on-screen cinematic worlds is shaped by and/or mirrors the ontological and spatiotemporal qualities of media forms. For example, in Chapter One I examine films that organise city spaces according to the spatial principles of cinema, reality television

[2] Appadurai conceives of mediascapes as one of five scapes, along with ethnoscapes, technoscapes, finanscapes and ideoscopes, that constitute "five dimensions of global cultural flow" (296). Appardurai is therefore concerned more with flow between and within these "scapes" in a globalized system of cultural and financial exchange, whereas I am appropriating the term specifically to refer to self-contained cinematic worlds in which the conceptualisation of space reflects ontological conditions and perspectives derived from media forms and technologies. Nevertheless, the cinematic body of work examined, which encompasses films from the USA, France, Italy, Germany and the UK, could be considered to constitute a depiction of an exchange between globally orientated 'mediascapes' as the films depict existing world locations as composite material/mediated locations often at the expense of geographical specificity.

and video games, while Chapter Two looks at films that utilise music or other sound as an ontological interface that alters characters' surroundings in the same way that post-walkman mobile listening devices enable aural augmentation of physical space. These films are cinematic mediascapes because their imaginings of cinematic space reflect both the ontological qualities of media forms and the power relationships between users and mediatised space.

In many cases, I draw connections between cinematic treatments of space and the prevalence of mobile ubiquitous media that offer the user pathways into the virtual, whilst the user simultaneously navigates physical environments. Ubiquitous computing has heralded a shift from the notion of "cyberspace" to an integration of "computers and computational devices throughout our world" (Bolter and Grusin 61). Mobile technologies and wireless connectivity have increased our proximity and attachment to the virtual world, while "ubiquitous computing signals a fusion of the digital and the analog in everyday experience whereby it becomes impossible to tell where one begins and the other ends as the two are seamlessly integrated" (Elwell 235). Mobile devices not only allow the user to inhabit both the world around them and the virtual spaces offered by the Internet, but also identify a user's location and deliver content based upon this location, which in turn shapes and mediates the user's experience of the physical space. Similarly, the qualities and dynamics of various media shape the on-screen spatial articulation of the films I address. These films do not, I argue, function as a direct representation or mimetic copy of real-world interactions with contemporary media and thus cannot be axiomatically viewed as a direct result of or commentary on ubiquitous media, but instead consistently parallel, through their aesthetic representation of space, the hybridity between material and immaterial space that contemporary ubiquitous media extends and accelerates. In this way, these films have added to our cultural repertoire of imagined mediascapes, taking their place alongside those envisioning virtual reality scenarios and often supplementing or blending with older visualisations of digital space.

The films analysed originate from different industries and national contexts and are linked by their exploration of the relationship between forms of mediation and material space. The films all have a sense of simultaneously inhabiting both an augmented, often media-enabled, space *and* a proprioceptive space; for this reason I structured my analysis around composite spaces on screen. With the exception of the earlier *Run Lola Run* (1998), the contemporary films analysed in depth have release dates ranging from the late 2000s to the present.[3] They thus coincide with the growing ubiquity of mobile ubiquitous media, especially

[3] The thesis often draws comparisons, however, with previous or earlier films, cycles or genres to examine both shifts and continuities in generic qualities, theme or aesthetic. I do not argue that the film aesthetics analysed have no previous antecedents, but rather that the films use

Apple's landmark smartphone, the iPhone series, first released in 2007 and followed by the iPad tablet in 2010, and Google's competing Android operating system for smartphones and later tablets introduced in November 2008 and available on fully touch-operated models from February 2010 (Arthur). The smart phone intervened in a mediascape already crowded with platforms and devices offering options for entertainment and information gathering including cinema, television, radio and digital music playback, Internet-connected computers and increasingly sophisticated gaming consoles. Multi-channel and multi-purpose devices such as the smartphone and tablet have provided sites where these competing media converge in a portable and integrated interface that can be used to peruse the Internet, play games, watch media content, communicate via multiple means including voice, email and text and so on. As Carol Vernallis notes

> we have seemingly unlimited access to an array of digitally enhanced media that present new configurations of time and space. With our smart devices we can conjure up these media instantly, anywhere, often jarringly, with one clip against another… we may become facile and fleet as we shift attention from one experiential mode to another (277).

In this environment, "the mediascape starts to resemble a world" (277). Throughout the thesis, I explore composite material/mediated spaces where subjective experience of space itself becomes distributed as perception divides between material and virtual layers. I do not draw a direct causal link between these developments and cinematic aesthetics; rather I trace the way in which particular configurations of film language can embody and visualise conceptions of materiality during a period in which evolving technology has drawn attention to the contested and shifting nature of these conceptions.

The thesis thus examines cinema's exploration of the way that composite material/mediated spaces redefine existing spatial experiences, relationships, designations and boundaries. For example, Chapter One addresses the relationship between virtual/physical phenomenological space in the city, while Chapters Two and Five touch on how virtually augmented spaces offer possibilities to redefine and complicate gendered spaces and subjectivities, and Chapter Four connects haptic textual graphics to the integration and envelopment of the body in mediatised spaces. As such, the methodological framework of the thesis draws from a wide range of theoretical discourses and arguments from different fields of study including film and media studies, new media, interface studies, phenomenology and gender studies. I utilise this diverse body of theory to support and enrich the close textual

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particular configurations and combinations of these aesthetics to articulate or map composite material/mediatised space.

analysis and extrapolate wider conceptions of– and attitudes towards–aspects of mediatised space from the heightened projections offered by the films. In this way the films become a starting point to analyse the ways that evolving conceptions of mediatised space contribute to similar permutations in popular understandings of embodied space, gendered space, haptic space and subjective space. The focus of the thesis therefore lies less narrowly on the convergence of media forms than on how cinematic aesthetics embody and project heightened extensions of contemporary interactions with composite space, shaped of course by evolving media formations. The thesis demonstrates how these films offer a vision of a composite space characterised less by parallel levels of reality than by intertwined layers of material and mediatised space and examines the extent to which this composite space extends and/or fragments bodily and subjective spatial agency. The films can thus be seen to explore the successful and/or unsuccessful negotiation of composite spaces. In this sense, many of the films are not about the Internet or mobile media per se, yet can nevertheless be interpreted in the context of a remediation of the relationship between the embodied self and mediatised space. In order to explore this relationship, it is necessary to conceptualise this thesis' approach to, and definition of, remediation.

Between Media and Mediation: Reconceptualising Remediation

The thesis engages with the theoretical paradigm of intermediality. Intermediality can be broadly defined as "those phenomena that… in some way take place between media" (Rajewsky 46). The term has, however, a wide array of heterogeneous applications that make specific definitions difficult to pinpoint (44). For example, one approach argues that all texts are inherently intermedial, because all media exist alongside one another, while the opposing theory focuses only on texts or groups of texts that "manifest some form of intermedial strategy, constitutional element or condition" (47). The focus of this thesis lies between these two approaches, as I consider cinematic texts both in relation to the ontological implications of other media more broadly and in terms of their adoption of specific techniques and aesthetics that explicitly highlight aspects of mediation. As Irina Rajewsky argues, "a given media product cannot use or genuinely reproduce elements or structures of a different medial system through its own media-specific means; it can only evoke or imitate them" (55). I thus concentrate on the way that films use aspects of the audio-visual language of cinematic form that shape our conception of on-screen diegetic space, including colour, music and graphics, to articulate a particular relationship between mediation and materiality.

I therefore join a growing body of scholarship on the notion of remediation whereby "one medium is itself incorporated or represented in another medium" (Bolter and Grusin 45). Bolter and Grusin theorise remediation as the defining principle of contemporary media, as new

media "refashion older media" while "older media refashion themselves to answer the challenges of new media" (15). They define remediation as "a more complex kind of borrowing in which one medium is itself incorporated or represented in another medium" (45). Most commonly a new medium "responds to, redeploys, competes with and reforms" the media that preceded it (55). This process of remediation is nevertheless bi-directional as film and other older media forms attempt to incorporate digital technologies through the use of digital graphics (48). Yet Bolter and Grusin's definition based around borrowing does not provide the scope to aptly describe the cinematic phenomena that form the focus of this thesis. In order to theorise my approach to remediation, one must first understand the distinction between media and mediation.

Alexander Galloway distinguishes between a "consumer-electronics view of media" and the concept of "modes of mediation" (15), and similarly between "digital objects…[and] our digital interfaces" (1). In his treatise on interface culture, Galloway argues that interfaces "are not simply objects or boundary points" but rather "mysterious zones of interaction that mediate between different realities" (vii). He emphasises the separation between media, which are technical objects, and "modes of mediation," which refers to the processes enacted upon the world by media "as middles or interfaces" (13-16). For example, the computer is a "technical media," but the acts of "storing, transmitting and processing" data from the world are "modes of mediation" (18), which act as interfaces between the media (computer) and the world. It follows therefore that, for Galloway, remediation refers not to the incorporation of specific media objects or texts, as in a particular film screened on television, but to the incorporation of a mode, as in the claim that television "incorporates the entire, essential cinematic condition" (20). The cinematic mediascapes examined in this thesis not only borrow specific textual qualities of particular media, but incorporate and/or layer mediated modes of perceiving space and imagining reality derived from other media within material spaces in the film, allowing for an exploration of the place of the body and self in spaces that share these ontological and phenomenological qualities. Thus, these films remediate not media objects but Galloway's "modes of mediation" (18). They do not address contemporary technologies and interfaces so much as the spatial relationships that these interfaces produce.

My invocation of this broader conception of remediation utilised by Galloway distinguishes my approach from other studies that focus only on the Internet and/or direct metaphors for the Internet in cinema, such as Aaron Tucker's volume, *Interfacing With The Internet in Popular Cinema* (2014) and Sylvie Magerstädt's *Body, Soul and Cyberspace in Contemporary Science Fiction Cinema* (2014). Although this thesis affirms some of the observations made by both theorists and utilises aspects of their analysis in relation to specific

films, such as *The Matrix* (The Wachowski Brothers, 1999) and *Avatar* (James Cameron, 2009), the focus, framing and scope of both of these studies differs from mine. While my points surrounding the less explicitly dystopian portrayal of mediatised space in contemporary cinema parallel Magerstädt's useful argument that contemporary science fiction cinema has largely shifted away from a purely dystopian attitude towards "machines, artificial intelligence and virtual realities to a more ambiguous portrayal that shows the opportunities as well as the dangers of virtual worlds" (3), I move beyond the exclusive discussion of entirely virtual worlds and address films that layer aspects of mediatised space into their screen worlds as well as considering films outside of the science fiction genre. Unlike Magerstädt, whose concerns surround the "relationship between body and soul" and the nature of humanity (4), I am less interested in defining humanity within the postmodern digital landscape and more focused on how we navigate and inhabit hybrid digital/material spaces. The goals of my study are thus closer to Tucker's as he focuses upon "movies that depict literal and metaphoric versions of the Internet," which "act as both a moulding and a reflecting set of cultural narratives that simultaneously encourage and imagine what a cyberspace could or should look like" (2). Once again, however, Tucker's more narrow focus on the Internet itself excludes a number of films from discussion that nevertheless engage with mediatised spaces more broadly. For example, the integration of elements coded as virtual/immaterial into films such as *Scott Pilgrim vs The World* and *Spring Breakers* represents an engagement with the relationship between the virtual and material even if the Internet itself is not a major theme.

One exceptional existing study provides a model for assessing remediation from this perspective. Aylish Wood examines a series of moving image practices, including animation, digital effects cinema, video games and multi-screen art installations that demonstrate two key concepts: "inscribed interfaces and competing elements" (*Digital Encounters* 6). She suggests that viewers must increasingly distribute their attention between diverse elements that interact within screen interfaces (those diverse elements might include special effects and characters/material elements or multiple stories across split-screens), which mirrors the way that we understand the world through diverse points of technological contact (8-9). We refract our experience of spaces through different media as "an individual's encounters with the world are modified by the proliferation of screen hardware" (75). When films utilise competing visual elements, they replicate this dynamic but "rather than occurring across a network of technologies," it manifests in the organisation of elements within the image produced by "cinematic technologies" (75). Wood makes the overall claim that "moving image technologies offer a range of embodied experiences through distributed viewing, a position that resonates with broader human experiences of technologies and the actual world" (11). Unlike this thesis,

Wood is concerned with digital technologies across multiple media, not just feature films, and focuses more on how the technologies used to produce those media and the viewer's experience of them reflect actual technological encounters, whereas my thesis is solely focused on cinema and its analysis is more formal and less technological (although the two areas sometimes overlap), examining how conceptions of mediated space are translated into on-screen elements of film worlds, such as colour, music and textual/symbolic graphics. Nevertheless, I borrow and extend several ideas from Wood throughout the thesis and share her aim to address "not… representations of technology but articulations of technology" in which the viewer encounters "the spatio-temporal transformations that technologies enable" (*Digital Encounters* 7). I also share with Wood a sustained focus on spatial dynamics, emphasising the logics and negotiation of space, rather than narrative structure.

A Question of Space and/or Time?

The impact or trace of contemporary digital technologies on contemporary cinema has previously been addressed predominantly in analyses of narrative and temporality, many of which analyse space, but structure their examinations primarily around time. Garrett Stewart, for example, argues that cinema responded to its own transformation into the postfilmic digital and immersion in the wider cultural phenomenon of virtual space and time with the production of "framed time," which is "the spatialized configuration of time itself as in its own right a malleable *medium*" (*Framed Time* 2). He notes that digital cinema allows for "temporal transformation (electronic) within the frame" whereby elements can be altered within a captured frame, creating a more complex temporality than the traditional concept of cinematic time as created by placing one frame next to another (2). American cinema has utilised this technological shift and responded, Stewart suggests, with "time-warp plots, with whatever degree of computerized editing or enhancement" (8). These films "seem to be operating according to an implicit *digitime*" (8). Also addressing temporality, Allan Cameron, Thomas Elsaesser and Todd McGowan examine contemporary forms of cinematic narrative and connect them, to varying degrees, to new media forms. These theorists differ in their terms and conceptions yet all three address the way in which film narrative no longer operates according to traditional linear narrative, but rather follows structures borrowed from the Internet and other digital media, such as "the archive and the database" (Elsaesser 24).

Lev Manovich discusses the opposing structures of database and narrative. He argues that the novel and the film "privileged narrative as the key form of cultural expression of the modern age" whereas the computer ushered in the primacy of the database (218). New media digital objects and texts are not stories organised in a logical and set order but rather "collections of individual items, with every item possessing the same significance" (218). To put it another

way, Manovich suggests that the database conceives of "the world as a list of items" whereas "a narrative creates a cause-and-effect trajectory of seemingly unordered items (events)" (225). Manovich relates the distinction between database and narrative to the semiological categories of syntagm and paradigm as formulated by Ferdinand de Saussure and developed by Roland Barthes (230). In syntagmatic logic, signs produce meaning because of their spatial organisation in a sequence (230). By contrast the "paradigmatic dimension" conceives of each sign as "chosen from a set of other related elements" (230). The sign or element is thus related not only to the other signs/elements that it is placed next to but also to all the alternative signs/elements within its category or grouping. In terms of narrative cinema, the actual "shots and scenes" that construct the film's narrative are the syntagm and are visible, whereas "the database of choices from which narrative is constructed (the paradigm) is implicit" (231). Manovich conceives of a "database cinema" that follows the paradigmatic logic of the computer rather than traditional narrative.

Several theorists have expanded upon this concept, addressing cinema's temporal permutations in more depth. Allan Cameron developed the term 'modular narrative' to refer to "narratives that foreground the relationship between the temporality of the story and the order of its telling" (1). Modular narratives consist of "a series of disarticulated narrative pieces, often arranged in radically achronological ways" (1). In this way, film narrative has taken on "the conceptual structure of the digital database" (2). He provides diverse examples of different modular narrative formations including *Memento* (Christopher Nolan 2000*), 21 Grams* (Alejandro Gonzalez Inarritu 2003) and *Eternal Sunshine of the Spotless Mind* (Michel Gondry 2004) among others (2). Cameron contends that these type of narratives gained prominence and mainstream popularity following Quentin Tarrantino's successful *Pulp Fiction* (1994), which "coincided with the wide dispersal of the of the personal computer and digital consumer technologies throughout the 1990s, and with the rapid growth of the Internet as a cultural medium" (1). While Cameron does not claim that these films are about explicitly digital culture, he suggests that "digitality has arguably shaped the cultural landscape in which these films are produced and make meaning" (1). Although Cameron's analysis of temporality evidently intersects with elements of spatiality, Cameron highlights temporal play as the primary appeal of this group of films, which make "temporal codes and narrative rules into an important source of audience pleasure" (5). By contrast, the films I examine seldom emphasise formal play with the relationship between narrative and temporality.

Such a sense of play with the audience's experience of a narrative also informs what Thomas Elsaesser calls the "mind-game film" (14). These "mind-game films" share some qualities with the cinematic mediascapes that I describe and analyse in this thesis, but with some

important differences. Elsaesser divides the "mind-game film" into two overlapping categories: "films in which a character is being played games with, without knowing it or without knowing who is playing these" and, secondly, films with protagonists "whose mental condition is extreme, unstable, or pathological" but which depict the character's reality as normal by staying within that reality (14). Both categories share "a delight in disorienting or misleading spectators" (15). This notion of tricking the audience seems to be a defining feature of the mind-game film that does not overlap with all of the films that I examine, which rarely fool the audience. For example, Elsaesser discusses *The Sixth Sense* (M. Knight Shyamalan, 1999) as an example of a mind-game film (14), but the film does not engage with technologically mediated subjectivities and thus falls outside the scope of this thesis. Two aspects of Elsaesser's characterisation of "mind-game films," however, parallel my conception of contemporary "cinematic mediascapes." Elsaesser distinguishes contemporary mind-game films from previous films about mental illness because the contemporary mind-game films mimic the mental state of the protagonist in their narrative form, meaning that they adopt their reality (25). In this sense, both cinematic mediascapes and Elsaesser's "mind-game films" dispense with a frame of reality outside of (technologically or psychologically) mediated worlds. Furthermore, Elsaesser connects the mental operations of his protagonists to technological processes "of our contemporary network society" (26), suggesting that the mental disorders experienced by the characters may in fact better equip them to negotiate a networked world (26-29). For example, Elsaesser argues that Leonard in *Memento* does not have the recourse to memory so he must rely upon "programming" techniques, such as repeating tasks "inscribed in the body" (28). Many of the films I analyse share this concern with the interaction between subjectivity and technology, as well as the skills required to negotiate a spatially networked world. However, this tendency manifests itself more in aesthetic/sensory elements within the frame than in complex narratives, and emphasises technological mediation not as a structural metaphor for the workings of the mind, but as a condition that shapes the ontologies of both mental and material spaces. While these films frequently demonstrate a distributed perception that aligns with composite space, I do not link this distributed perception to specific pathological mental disorders of individual characters. Although some films may cross over between the two categories, the films I analyse are chosen primarily for their engagement with the relationship between material and mediated space, and the subjectivity that produces, rather than for their invocation of psychological disorders.

Like Elsaesser, Todd McGowan's study of atemporality in cinema acknowledges the influence of technology, but ultimately uses technology as a spring-board to approach contemporary cinematic narrative from a psychological perspective. McGowan notes a trend

towards films with non-linear time schemes (such as the work of director Christopher Nolan) as "more and more filmmakers have taken up an atemporal narrative mode" (31). As with theorists discussing "mind-game films," McGowan's analysis is largely on the level of narrative structure. McGowan suggests that these films follow "the logic of the drive" (32) and propose that time offers not "a different future but instead an incessant repetition" (10). In Freudian terms, the logic of desire requires that an individual believes in "a satisfying object" that will enable one "to regain the lost object," whereas "the drive locates enjoyment in…the repetition of the loss, rather than in what might be recovered" (11). Desire is temporal because, although the subject will ultimately never be satisfied, the future at least appears to be "full of possibilities" and objects of desire (12). The drive, however, is atemporal because "it insists on the subject's resistance to temporal change" through endless repetition (12). Traditional cinema mirrors the "logic of desire" by constructing a narrative that produces "the illusion of temporal movement" (32). Atemporal cinema on the other hand acknowledges "that the future does not hold the solution to the problem of desire and that the destiny of the subject is one of a failed repetition rather than progress toward possible success" (31). McGowan claims that this cinematic trend is "the product of the digital era" (33). With the Internet, social media and 24 hour-news, we are able to access information about news events as well as about the activities of our friends and family instantaneously "in real time" (25-26). Time is essential to desire because it comes between the subject and the attainment of the object of desire (26). Because the object is immediately attainable, we gain the object but lose the period of desiring it (that is the time in which one thinks that it will provide satisfaction) and thus the failure of the object to provide the expected satisfaction becomes "immediately evident" (27). Therefore, we are left with the drive (28). McGowan thus regards technological change as essential to the development of atemporal cinema, but conceives of these films as reflecting the traumatic repetition engendered by such technologies rather than the technologies' mediation of space. My thesis, by contrast, examines the importance of mediatised ontologies and aesthetics in structuring the diegetic world of films.

While the database has provided a strong paradigm for several excellent discussions of temporality and narrative in cinema responding to the prominence of the computer and its spatiotemporal logic, my thesis is concerned more with the relationship between material spaces and virtual modes of mediation. This focus on the relationship between material and virtual space rather than on ways of organising narrative data aligns more with the transformations wrought by mobile ubiquitous media and with wider digital culture than with the organisational logics of computing systems per se. The shift towards focusing on the ontological and phenomenological properties of the diegetic spaces presented rather than narrative or

temporality also entails a different conception of audience pleasure or appeal in the films analysed; while narrative complexity provides interpretative pleasure, the intended effects on viewers in many of the films analysed in this thesis are more sensory or visceral, frequently produced through aesthetic characteristics such as sound, colour and textual graphics.

This focus on the sensory aspects of space recalls Steven Shaviro's notion of "post-cinematic affect" (1). Shaviro analyses a diverse group of works that do not directly "*represent* social processes" but rather utilise cinematic effects and techniques to contribute to structures of feeling and experience that characterise contemporary economic, social and mediated spaces (2). Crucially, he imagines these works, which include three films that he analyses at length– *Boarding Gate* (Olivier Assayas, 2007), *Southland Tales* (Richard Kelly, 2007) and *Gamer* (Mark Neveldine and Brian Taylor, 2009)–as "diagrams" of particular aspects of contemporary post-cinematic culture and society (6). He examines the way that *Boarding Gate*'s narrative and aesthetic style maps financial flows as "invisible abstractions" with devastating material consequences; how the hyper-mediated and fragmented construction of *Southland Tales* provides a diagram of "the dislocations that result from" the contemporary "new media ecology"; and, finally, the conflation of game and social space in *Gamer* (7). Shaviro suggests that these films do not attempt to directly depict contemporary conditions, but rather to map them in cinematic terms; as he states in relation to *Boarding Gate*, these films engage in a project that is "cartographical, rather than mimetic" (36). Furthermore, Shaviro makes the important observation that the mapping of a post-cinematic digital landscape occurs precisely through filmic techniques, which translate the characteristics of post-cinematic media into particular cinematic narrative and formal aesthetics (39). For example, he describes *Southland Tales'* "incessant flow of images and sounds" as "an ironically cinematic *remediation* of the post-cinematic mediasphere that we actually live in" (67). While Shaviro analyses these films primarily from the point of view of their abilities to "explore the *possibility space* of globalized capitalism, mapping this space both cognitively and affectively" (135), my thesis's contribution rests in its analysis of how contemporary cinema maps the "possibility space" (135) of a spatial condition characterised by material/virtual hybridity and translates this condition into an on-screen mediascape.

My adoption of Shaviro's use of the term "possibility space" (135) invokes the language of science fiction, with its focus on futuristic speculation. Shaviro argues persuasively that science fiction "is not about literally predicting the future" but instead "capturing and depicting the latent *futurity* that already haunts us in the present" (66). This sense of a non-naturalistic or heightened aesthetic that extends or projects the contemporary world permeates my analysis, both of films traditionally categorised as "genre" fare and of auteurist art cinema.

Science Fiction and Technological Tales

The films discussed in this thesis, both those defined as science fiction and those with affinities to other cinematic modes, share an emphasis on the relationship between technology and subjective reality that finds antecedents in science fiction genre films, especially dystopian narratives that comment on the postmodern condition, yet they also depart significantly from the genre in important ways. In 1993, Scott Bukatman coined the term "terminal identity" to describe what he identified as both the death of modernist understandings of the autonomous subject and the construction of a new form of mediated subjectivity channelled through the computer and/or television screen (9). He examines a collection of science fiction literature and cinema that combines "both stylistic and thematic approaches to the problem of the subject in the electronic era" (9). He argues that postmodern science fiction texts represent neither "the character's nor the artist's unconscious" but rather spring from "a technological unconscious" (15). Bukatman claims that this "terminal identity" is mirrored by the notion of "terminal space," which can be defined as "the realm of virtuality and real-time, interactive, computer-generated environments" (107). Science fiction films, such as *TRON* (Stephen Lisberger, 1982), *Brainstorm* (Douglas Trumbull, 1983) and *Terminator 2: Judgement Day* (James Cameron, 1991) create such a space within "the terrain of special effects" (107). This idea of "terminal space" is largely inspired by the conception of cyberspace in the 1990s as "a new and decentred spatiality… that exists parallel to, but outside of, the geographic topography of experiential reality" (105). Thus, both identity and space become divorced from embodied experience. The cinematic mediascapes explored in the following chapters represent a continuation of this concern with mediated spaces, but reject a distinct barrier between cyberspace and materiality. In this way, they refuse to bracket off a subjective mediated perspective within a wider frame of objective reality. They thus generate important questions regarding how composite space may enable new forms of subjective mediated negotiation of material spaces and how material bodies can integrate with digital identities.

Bukatman and Garrett Stewart both theorise science fiction's particularly strong, if not unique, self-reflexive commentary on mediation. Bukatman suggests that science fiction is the perfect genre to examine new forms of seeing/understanding reality because it features an "inherent reflexivity" about its own formal and textual qualities, thus foregrounding the means by which reality is constructed (12; 30). In terms of science fiction cinema, Bukatman emphasizes the significance of special effects, which draw attention to "the act of seeing" through their "reflexive spectacularity" (13). The cinematic mediascapes I analyse share a similar reflexivity about form through their allusion to other mediated modes and thus highlight mediatised perspectives, albeit through their aesthetic remediation of spatial relationships and

not only through the kind of awe-inspiring special effects that Bukatman identifies as characteristic of science fiction cinema. Stewart also discusses the self-reflexive nature of science fiction cinema, arguing that it often uses cinema itself, or at least visual media, as a stand-in "for the entire technics of an imagined society" ("Videography of Science Fiction" 159-161). He offers a relatively expansive definition of science fiction films defined primarily by self-reflexivity "about the techniques of their cinematic presentation to us" (162). Stewart describes films which present screens within the narrative of the film, noting that there are "viewing screens and viewing machines crowding so many of the science fiction sets one can think of" (161). The films I analyse largely dispense with screens within the screen, instead primarily choosing to spatialize mediated modes of experiencing the world within their diegetic worlds.

This tendency to reject a binary distinction between objective material reality and the immaterial virtual world implies a fundamentally less conservative attitude towards mediation in comparison to earlier science fiction films, as well as a reduced focus on the dangers of corporate digital manipulation. Wendy Sterba examines a number of Hollywood dystopias, including *Minority Report* (Steven Spielberg, 2002), *Strange Days* (Kathryn Bigelow, 1995), *Surrogates* (Jonathan Mostow 2009) and *Southland Tales*, that reproduce fears around the manipulation of digital images by corporations and institutions, but retain a sense that the "photographic image…continues within the diegetic world of the story to have the imputed potential of revealing truth" (272-273). She suggests that these films are "reactionary" and "support traditional values of human experience" (274). They assert the value of escaping from technology-driven simulated environments into the pure "real" (274-275). This notion of the possibility of escape distinguishes these dystopias from many of the cinematic mediascapes I discuss (with the exceptions of *Sucker Punch* and *Transcendence*, which do offer the possibility of an escape into the real world). Sterba's "near dystopias of the post-photographic era" (283) ultimately serve a conservative ideological purpose as they suggest that ordinary cinematic images are capable of representing reality so long as they are not manipulated by some external evil force (284-285). I would argue that many of the films analysed in this thesis are thus potentially more radical and nuanced in their attitude towards objective reality because they do not associate the virtual with an evil agency manipulating otherwise real images. In this way, even when they present negative attitudes towards mediatised space, they tend not to associate this mediatised space with a manipulative corporation. Such a shift implies a conception of users as in control of their digital/material environment and representations, nevertheless ambiguities remain about the levels of agency users enjoy. The main threat to agency in many of these more

recent films is the, frequently voluntary, fragmentation of the self, rather than the corporate manipulation of reality.

Only a limited number of the films discussed in the thesis fall within the genre of science fiction. The majority of the films that I analyse sit outside of this genre and do not tackle traditional science fiction questions surrounding definitions of humanity on a philosophical level, yet they all perform the labour generally undertaken by the genre, which is to project a contemporary situation forward or to its possible extreme, because they project heightened and non-naturalistic visions of interactions with technology. Aaron Tucker argues that from the mid-2000s onwards the Internet was no longer the province of science fiction because it has become so much a fixture of everyday life that cinema began to depict interactions with cyberspace not as entries into other worlds but as everyday elements of naturalistic films (197). Tucker is referring specifically to depictions of the Internet rather than media forms more broadly, but even with regard to the Internet his conclusion appears debatable; for example, *Transcendence* (Wally Pfister, 2014), analysed in Chapter Five, uses the Internet as a core element in a science fiction cautionary tale even though the Internet is not represented as a separate fantasy world in this particular film. My approach differs from Tucker's in that, although I do not regard all, or even the majority of, the films I analyse as science fiction texts, I acknowledge that they frequently present exaggerated versions of the relationships between everyday technologies and spaces in a surreal, abstract or non-naturalistic manner. For example, I argue that the films analysed in Chapters Two and Three of this thesis transmute and/or mirror relationships between mediation and materiality through the use of sound and/or colour as interfaces between the abstract and the material. In this way, many of the films I analyse sit outside of identifiable genre boundaries and in some cases, such as in *Under the Skin* (Jonathan Glazer, 2013), blend social realism with an aesthetic strangeness. Furthermore, many of the films, such as *Reality* (Matteo Garrone, 2012), *The Bling Ring* (Sofia Coppola, 2013) and *Spring Breakers* (Harmony Korine 2012), explicitly address the characters' attempts to augment or aestheticise their mundane realities. Thus, the theme of composite or augmented space recurs throughout these diverse, genre-defying films.

This non-naturalistic presentation echoes some of the primary characteristics of science fiction as theorised by Vivian Sobchack. Sobchack claims that Science Fiction's visual style is defined by its "subversion of the familiar" (*Screening Space* 136). Its appeal and uniqueness derives from "a sense of strangeness-a sense of wonder" produced by "a confrontation between and mixture of those images to which we respond as "alien" and those we know to be familiar" (87). Sobchack here refers more literally to science fiction texts where alien elements indeed invade contemporary cities, but such a mixture of the familiar and the fantastical recurs across

a number of the films analysed in this thesis, albeit in a radically different context. For example, in *Scott Pilgrim vs The World* (2010), director Edgar Wright deploys graphic text and symbols familiar from video games and comic books and turns them into haptic elements of the on-screen world. While we increasingly engage with haptic interfaces in our daily lives, we do not physically walk past graphical blocks of text embedded in material spaces as depicted in the film. The film thus exaggerates a particular spatial configuration drawn from real-world trends but extends it into a fantastical—and to a degree, speculative—context. Even multi-story drama *Men, Women & Children* (Jason Reitman 2014), which offers an exposé of the perils of various forms of internet addiction in a contemporary setting, is visually surreal, offering uncanny images of high school students wandering the halls while the content they are viewing on their phone screens hovers above them.

The thesis does not attempt to redefine science fiction or to claim that all the films discussed should be labelled as science fiction films; rather, I acknowledge that a number of contemporary films from various genres (including science fiction amongst others), national contexts and cinematic traditions resonate with contemporary experiences of mediated space and thus perform some of the conceptual labour traditionally attributed to the science fiction genre. It thus serves the conceptual aims of this thesis not to limit my exploration solely to films classed as science fiction. The films analysed reveal insights about shifting conceptions of mediatised space that are indebted to, but different from, those presented by science fiction dystopian narratives of the 1990s and early 2000s. In order to contextualise these films in terms of their representation and/or reflection upon mediatised space, it is necessary to briefly explore the history of cyberspace in cinema in order to explain the specific thematic and aesthetic contributions made by the films analysed in this thesis. Throughout the thesis, I frequently make historical comparisons, identifying both continuations and departures from previous and/or concurrent models for conceiving mediatised space in cinema. The following section provides an overview of the historical function and treatment of cyberspace in cinema in order to situate the contemporary films featured in the main body chapters of the thesis as both part of a longstanding cinematic exploration of technology's transformative effect on space and as a significant development from previous iterations of this theme.

Cyberspace On The Big Screen: Screening Simulated Worlds

Tucker notes that early films to address the Internet, such as *The Net* (Irwin Winkler, 1995) and *Hackers* (Iain Softley, 1995), depicted it as a virtual villain infecting people and homes (35-36). In *The Net*, loner and software analyst Angela (Sandra Bullock) has her identity erased and replaced by a computer programme tied to a dangerous man who enters her life. In the more youth-orientated *Hackers*, a group of teenagers must work to stop the release of a potentially

catastrophic computer virus. The films revolve around "the two heterotopias that both films take place in: the suburbs and cyberspace" (35). The Internet and cyberspace are "invisible transformative invaders, illnesses" that break into the spaces of suburbia (36). Despite this sense of invasion, Tucker points out that the body remained resolutely outside of cyberspace: "it was always the young protagonists outside the computer using it and gazing at the barrier of the screen" (57). This barrier was notably absent from films of the late 1990s, where characters' avatars "actually inhabit a parallel universe of…whole (and vibrant) urban landscapes" (61-62).

An early outlier in this regard can be found in *TRON* (Steven Lisberger, 1982), in which a computer hacker, Kevin Flynn (Jeff Bridges) is trapped in an online video game figured as a digital grid, and must compete against computer programmes in combat, using his avatar Clu (also played by Bridges). The film's digital universe pits users against programmes in arcade-style showdowns. As Nick Jones notes, the film was revolutionary in that it visualised the "non-material space" of the Internet as a space that could be embodied and navigated (123-124). Nevertheless, this space is still figured in the abstraction of a grid, "most memorably presented as latitudes and longitudes of fluorescent light etched on entirely black surfaces" (124). Mapping, rather than architectural space, provides the primary model for this visualisation of computer networks (124). Walls lack texture and are reduced instead to abstract, flat shapes (Tucker 54). This element of flat abstraction contrasts greatly with the integration of graphics and other elements of mediatised space into material spaces explored in this thesis.

Interestingly**,** Disney's 2010 sequel *TRON: Legacy* (Joseph Kosinki) retains the emphasis on the grid and geometric lines, but suggests more potential for overlap between this world and its material counterpart. The film's plot involves a bid by Flynn's avatar, Clu, to break himself and the programmes out of the digital world, making "their world open and available to all of us." *TRON: Legacy* furthermore envisions a new hybrid life form, "isomorphic algorithms," born on the grid, who are described as "bio-digital jazz," thus challenging the binary opposition between users and programmes in the earlier film. At the end of the film, Quorra (Olivia Wilde), one of these hybrid organisms, enters the real world and as such she "occupies a corporeal body [which is] the exact copy of her virtual one" in a process that inverts the usual transition from real to digital body prevalent in so much films about virtual reality, including the original *TRON* (Tucker 70). Even the aesthetics of *TRON: Legacy*, while acknowledging their debt to its predecessor, represent a development in which, as Jones observes, "the materiality of the grid seems to have developed from its primary constituent features into a detailed, richly enveloping mise-en-scène" (127). Indeed, Jones notes that the grid comes to look increasingly similar to the real-world sequences of the film (127). For example, early in the film we see night-time shots of the film's protagonist, Flynn's son, Sam (Garrett Hedlund) riding his motorcycle with the

motorcycle represented as a light weaving through a dark city and over a bridge, which resemble the later sequences of Sam competing in races on motorcycle-like vehicles drawn in light against the black background of the grid. When Quorra takes Sam "off-grid," she drives along a bumpy path between dark shapes that resemble hills, thus mirroring real-world "off-road" travel. The digital world in *TRON: Legacy* is thus still separate from the real world, but overlaps visually (Jones 127). Such a shift between the two films' aesthetics demonstrates the influence both of technological, social and cultural changes in the intervening years and of the films released in the 1990s that developed the image of the digital cityscape.

In the late 1990s, films such as *The Thirteenth Floor* (Josef Rusnak, 1999) and *eXistenZ* (David Cronenberg, 1999) presented compelling images of parallel virtual realities that human bodies could explore via avatars, reflecting the increased prominence in popular culture of cyberspace and video game universes as spaces for leisure. Rather than presenting the Internet as an intrusion into realistic suburban spaces, these films imagined cyberspace as "active, user-defined, fully inhabitable" cities (Tucker 62). Murray Pomerance cites several of these films as prime examples of a subset of films that are structured around co-present but separate levels of reality, which he dubs "elevator films" because they feature "smooth ascent and descent from discernable levels" (2). In Pomerance's "elevator film," the alternate (virtual) worlds are "constituted as equally valid and coexistent structures that must occupy a special kind of narrative space not accessible under normal circumstances" (2). The secondary reality is thus always present alongside our normal reality (3). For example, *The Thirteenth Floor* imagines a simulated virtual world inhabited by fully conscious, sentient people who "have their own life independently from the users" (Magerstädt 42). Real humans can choose to inhabit this world by swapping consciousnesses with one of the virtual beings; the virtual person's consciousness thus resides in the sleeping, inactive body of the so-called "real" person back in a lab (43). This idea of the real body sleeping in stasis while a substitute roams the embodied virtual world is characteristic of the majority of virtual reality films from the late 1990s and contrasts with the contemporary films discussed at length in this thesis in which bodies often inhabit composite spaces.

Representing an important development, in *eXistenZ* Ted (Jude Law) and Allegra (Jennifer Jason Leigh) inhabit a video game where their avatars, far from being different conscious beings, are only superficially differentiated from their real-life counterparts through small details such as "changes in clothing and hairstyle," thus complicating the distinction between virtual and actual reality further than films such as *The Thirteenth Floor*, even though *eXistenZ* retains the body sleeping in a pod metaphor (Lowenstein 69). Lowenstein argues that *eXistenZ* uses "mimicry as a becoming space" both for its characters and audience (70). In the film, participants

connect to the game through pods comprised of both "living tissue and electronic circuits": an umbilical cord and power cable connect the user to the game pod, via a port drilled into the user's spine (70). In this process "animate matter becomes inanimate (bodies mimic machines) as inanimate matter becomes animate (machines mimic bodies)" (70). Lowenstein invokes surrealist theorist Roger Callois's notion of mimicry as a type of game where one pretends to be another and thus simulates "an imaginary universe" (54). Callois would consider a film actor to be engaging in a game of mimicry, but no more so than the film's viewers, who "are also engaged in acts of imaginative imitation, forgetting themselves as they enter the film's world and identify with the film's characters" (54). Lowenstein suggests that, in *eXistenZ*, Cronenberg uses "moaning game pods, infected bioports, and bleeding umby cords" as "embodied objects that generate visceral responses from embodied viewers" (70). In this way, the film uses mimicry not only to depict a virtual space that the characters enter via avatars of their own bodies, but to actually "close the space between screen and viewer" (70). As the spectator's bodily sensations mirror those of the bodies on screen, the spectator is not only viewing a representation of a virtual reality, but is indeed part of a virtual, embodied space not dissimilar to that of an interactive game space (70).

Although released in the same year, *The Matrix* by contrast stresses disembodiment and spaces created entirely from data. The film follows Neo (Keanu Reeves) as he discovers that the real world, which has been laid to waste in a post-apocalyptic scenario, is masked by a deceptive computer programme called The Matrix, while real human bodies lie in pods and are used as power sources. He must choose to reject the Matrix, enter the real world and help the rebels to free the unknowing human minds inside the Matrix. The film opens with a screen full of green computer code and the camera zooms into this computer code, emphasising that the film takes place within a universe structured by digital data. Indeed the film's major theme is the ease with which we accept an entirely simulated environment. For example, when rebel leader Morpheus (Lawrence Fishburne) brings Neo inside a computer training programme to explain how the Matrix works, we see the two men against a blank white background, with armchairs. Morpheus shows Neo an image of the real world on an old-fashioned television set, representing the analogue past. This technological relic is contrasted with the computer programme itself, which, as Morpheus explains, is a simulation onto which anything can be loaded. Space, in this context, loses its materiality and becomes interchangeable. When Neo jumps off a building in a training simulation, for example, he lands on concrete, which becomes elastic and pushes back at him as if it is made of malleable, digitally alterable material, before becoming hard again. When he returns to reality, his mouth is bleeding, suggesting a point of impact, but he is not significantly hurt. The digital environment lacks physical qualities. In fact, Jones makes the point that in *The*

Matrix, Neo's body must be altered and made malleable through digital techniques used to represent impossible body movements and altered temporality, such as the now infamous usage of bullet-time, in order to depict Neo's growing mastery of digital space (134-136). In this way, "these effects are used to depict spatial mastery but only by embracing the unreality and artifice of the represented space" (134).

Arguably *The Matrix* has generated more discussion about post-modern hyper-reality in the broader culture than any other science fiction film, especially due to its direct referencing of Jean Baudrillard, whose *Simulacra and Simulation* acts "as a hiding place for Neo's computer discs" (Constable 233). However, many theorists have noted that the film does not indeed replicate Baudrillard's vision of simulation because it retains an opposition between illusion and a real-world into which one can escape (Constable 239). This opposition is crucial to understanding the film's ontological parameters. Baudrillard discusses the notion of "simulation," that is, "the generation by models of a real without origin or reality: a hyperreal" (1). He describes a postmodern order of "simulation" in which the real can no longer exist; rather it is replaced by "signs of the real" (1-2). He distinguishes simulation from representation (6). Representation relies upon an assumed although always imperfect "equivalence of the sign and the real," whereas "pure simulacrum" bears "no relation to any reality" but rather refers only to signs (6). Baudrillard further suggests that the "imaginary" disappears because it exists only in opposition to the real: instead of a separate imaginary and reality, the two combine into "a hyperreal, produced from a radiating synthesis of combinatory models in a hyperspace without atmosphere" (2) *The Matrix* envisions a future where we live in a computer-generated simulation of reality, which disguises the devastation of the real world. It thus retains a comparison or alternative between the real and the imaginary existing as two separate spaces. As David Lavery notes, "in *The Matrix*, we know very well where the "real" world is" (156). The film makes it clear that "the real world exists…and cinematic art… can represent it and tell a heroic tale of its recovery" (156).

The Matrix seems to reflect the opposition between the alternative realms that Baudrillard argues are the traditional preserve of science fiction, but are no longer relevant in an age of simulation where the real and the imaginary no longer double each other and have instead collapsed together (Constable 238, 241). Baudrillard, boldly, claims that "the good old imaginary of science fiction is dead" (121). If *The Matrix* retains the "differential worlds of science fiction" (Constable 241), the films discussed in the remainder of this thesis seem to present a variation of and challenge to the binary relationship between mediation and materiality, and the associated distinction between mental and physical spaces, as depicted in this earlier iteration of mediatised space. They do not align themselves with a Baudrillardian

conception of simulation whereby materiality is increasingly redundant, but nor do they suggest that we can distinguish between separate entirely material levels and entirely virtual cyberspaces.

A crucial turning point may be found in James Cameron's *Avatar* (2009). *Avatar* represents a conceptual mid-point between the cyberspace-inspired simulated hyper-realities of *eXistenZ, The Thirteenth Floor* and *The Matrix*, and the films that I discuss later in this thesis, which act to visualise the digital's interaction with and integration into material reality. Although not directly about cyberspace, James Cameron's *Avatar* engages with the notion of mediated reality. In the film a group of scientists and soldiers must explore the real (within the film's universe) planet, Pandora, through custom-made avatars that are produced from organic matter taken from Pandora's indigenous people, the Na'avi, but are synthetically constructed (Magerstädt 16). Meanwhile their human bodies remain in "sleeping boxes" back on the base (16). The film shares many common characteristics with *The Matrix* and *eXistenZ*, especially the familiar split between mind and body as the physical body remains inactive while the mind roams; however, Sylvie Magerstädt makes the very important distinction that "in *Avatar*, both the world of Pandora and the avatar bodies exist in the same material reality as the avatar 'drivers'" (16). Unlike the previous examples in which "the alternative world 'just' exists in the form of data and therefore can only be accessed *virtually*, the world of Pandora *actually* exists right outside the doors of the human base camp—it is…an actual/material, not a virtual reality" (20). She further notes that the humans do not actually need their avatars to gain entrance to Pandora, but only to communicate with its inhabitants (20). The avatars are thus tools that allow the humans to project an image of themselves in order to communicate with others within that real world. Tucker thus suggests that the film therefore appeals to, whilst also metaphorically representing, a "machinic audience: one that understands him/herself as mechanically extended, mediated and manipulated" (75).

Pandora nevertheless retains a very strong visual association with virtual reality. Although Pandora is nominally an organic eco-system, Tucker notes that the planet is represented in the film as "a supra-vivid exaggeration of reality spectacularly splashed with brighter-than-bright colors and sprawling, impossible landscapes" (98). Much like a video game, Pandora's hyper-reality is not a naturalistic representation of the world that we experience, but instead possesses an "all-encompassing reality that far surpasses the viewer's own" (98). Pandora *looks* like a digitally created world or form of virtual reality, even if the film narratively tells the viewer that it is not. For example, when the humans see Mountain Banshee (flying purple birds) from their plane as they initially survey the planet, the movement of the birds' wings are almost mechanical or robotic in their slightly stilted motion. Furthermore, objects

sometimes act like icons or touch controls within the universe. When protagonist Jake (Sam Worthington) is exploring Pandora with his love interest, a member of the indigenous population named Neytiri (Zoe Saldana), they touch some pink/orange plants with large wide openings and these organisms pop and disappear. It is as if they are clickable or have been swiped away/closed by users interacting with a video game environment[4]. In this way, *Avatar* shares a visual binary between the hyper-real Pandora and the visually dull environment of the base that marks the former out as "virtual" reality.

Despite the clear visual influence of the simulated, artificial worlds of video games, Tucker suggests that the guiding principle of Pandora is that of "constant networks" (76). Pandora is a fully-connected environment where users are able to access shared knowledge. This communal knowledge is contained in the landscape of Pandora itself, especially the Tree of Souls, which enables the Na'avi to plug their brains into a collective consciousness visualised in the connected system of roots, branches and vines of a tree. In this way, "Pandora is a planet in which media is so diffused that it has become literally biological, grown into the plants and animals and Na'avi" (99). Furthermore, it is an organic world that contains digital data: when scientist Grace (Sigourney Weaver) plugs a needle into a tree root, an electronic device displays "the electro-chemical processes taking place within" (Magerstädt 22-23). Although the tree root is organic, the transformation of the object into digitally measurable data displayed on a screen points to the conception of Pandora as "cybernetic nature" (22-23). Users of Pandora connect not only to each other but to the "wisdom of the [Na'avi] ancestors," which is "embedded in the mythical network of Pandora" (Magerstädt 23). The organic materials in the film increasingly look like networks of connecting wires, mirroring Jake's description of Pandora in voice-over as "a network of energy that flows through all living things." When the Na'avi ride Direhorses, for example, they plug strands of their hair into the horses' manes, merging with the animal. They are connected via hair, but the hair resembles electronic cables, connecting components of a system. In the film Pandora thus represents "a place where the Internet never shuts down and the user never disconnects" (Tucker 100).

[4] The video game motif is further emphasised by the fact that Jake's avatar has physical abilities that exceed his own. While everyday users of video games routinely use avatars that have superior skills and strengths to their own bodies, *Avatar* exaggerates this disparity by making Jake's physical legs paralysed (Magerstädt 19). When Jake first enters his avatar, he runs out into the yard of the base and begins leaping over wooden hurdle-like objects. His motion resembles the jump functions on video game controls and his testing of his new body recalls the process in which gamers experiment with their characters and tentatively explore the game environment to establish its dynamics.

Avatar aligns itself with narratives of virtual reality through its simulation of a hyper-real world and its usage of virtual avatars; however, it also points to a visual correlation between physical, organic material and virtual networks as integrated within a single ontological level. Avatars are not conceived as separate entities representing the body, but as digitally altered bodies within a hybrid space. This change is significant as it heralds a movement away from the notion of a malleable cyberspace that functions simply as an abstract template used to construct a purely simulated environment. The films discussed in the rest of this thesis further explore this sense of an intertwined physical and virtual space, where one both mirrors and acts upon the other. In this way, they establish a spatiotemporal logic that resembles the dynamics of ubiquitous media more so than traditional video games or 1990s conceptions of cyberspace. The following chapters will explain how cinema can be seen to remediate the contemporary challenges posed by ubiquitous media to ontological and phenomenological boundaries between material and mediatised space. The films examined address an ontological condition where we have embodied experiences of everyday material spaces that nevertheless incorporate aspects of mediatised space layered over and within physical environments. They visualise this aspect of hybridity and heterogeneous ontology, whilst exploring and commenting upon the physical and mental navigation of such spaces. These films do not rely upon a separation of technological consciousness and embodiment, but rather offer diverse perspectives on the closely integrated relationship between digitally mediated hybrid subjectivities and the successful/unsuccessful negotiation of composite spaces by material bodies.

Chapter Breakdown

Chapter One draws connections between the spatial properties of cinematic spaces and media forms through an exploration of four films that explicitly depict global cities through the lens of various media. Each film integrates a conceptualisation of space derived from a media form with the depiction of a material city. I analyse the construction of Berlin as a video game in *Lola Rennt* (Hereafter referred to as *Run Lola Run*, Tom Tykwer, 1998), cinematic Paris in *Holy Motors* (Leos Carax, 2012), Naples as imagined as a reality television set in *Reality* (Matteo Garrone, 2012), and Los Angeles as mapped by Google in *The Bling Ring* (Sofia Coppola, 2013). This chapter serves both as an exploration of the integration of tools for mapping and imaging space with urban environments and as a theoretical basis for the thesis more broadly. It expands directly on the layering metaphor that recurs frequently in this thesis and begins to address how bodies and identities might become open to revision and reinvention within this layered environment.

The following two chapters demonstrate how elements of abstract cinematic aesthetics embody and visualise the ontological and perceptual fluidity generated by mobile ubiquitous

media as interfaces between the material and the virtual. Using the primary examples of *Sucker Punch* (Zack Snyder, 2011) and *Spring Breakers* (Harmony Korine, 2012), Chapter Two theorises a 'post-walkman cinema' that treats music and sound as transformative interfaces, which act upon the ontological properties of cinematic diegetic spaces in the same manner that mobile listening devices can act as tools to aestheticise the daily lives and experiences of users. The chapter argues that these films use audio-visual elements to replicate a kind of distributed perception that can both provide the sensation of increased control over one's environment and facilitate voluntary bodily disenfranchisement. This chapter further posits that such a distributed perception can be linked to Anahid Kassabian's concept of "distributed subjectivity," whereby subjective formation "takes place across a network of music media" (*Ubiquitous Listening* xi). The concepts of distributed perception and distributed subjectivity enable the chapter to discuss the films' linkages between aurally aestheticised spaces and the negotiation of gendered subjectivities and identities. This chapter therefore introduces the idea that composite space may privilege feminine qualities and thus enable women in particular to navigate potentially hostile environments, while acknowledging the physical limitations of this negotiation.

Focusing on visual rather than aural interfaces, Chapter Three examines two films, Gaspar Noé's *Enter The Void (*2009) and Jonathan Glazer's *Under The Skin* (2013), which depict abstract colour as mobile force layered over the material world that is able to connect and envelop objects, bodies and spaces. Abstract colour bleeds out from objects and/or spaces, seemingly merging both with the surrounding environment and with human bodies. Colour operates like a wireless connection passing between and through objects, places and people, which all act as interfaces in an interconnected network of colour. This networking is shown to be capable both of extending the presence of the body and the self into spaces and of enveloping or disenfranchising the body. Furthermore, both films utilise colour, rather than music like the films in Chapter Two, to emphasise a layered perception that once again provides a tool to navigate composite spaces. Thus, both bodies and subjectivities become elements of networked space. The chapter explores how elements of abstract and/or digital colour are utilised to visualise different iterations of the relationship between body, subjectivity and place in composite spaces.

Expanding upon Chapter Three's concern with how the physical body integrates and makes contact with elements of the abstract or immaterial, Chapter Four compares the use of textual/symbolic computer graphics in *Scott Pilgrim vs The World*, *Men, Women & Children*, *Nerve* (Henry Joost and Ariel Schulman 2016) and *Unfriended* (Leo Gabriadze, 2014) to summon up other sensory phenomena, particularly touch and movement. I argue that, taken together, the films explore two seemingly contradictory tendencies in contemporary digital

culture: interfaces are increasingly operated by bodily movement, thus emphasizing the physical, haptic and interactive, while on the other hand they have become so integral to daily activities and self-expression that they threaten the prominence, and security, of the body. The chapter tracks the integration of haptic graphical text and symbols as spatial elements in the four films, suggesting that each successive film analysed represents both the body and individual subjectivity as more disempowered within composite space, especially as they are increasingly vulnerable to the suggestions and ubiquitous presence of other individuals in integrated lived/digital environments. The integration of graphical elements into screen space is linked to the encroachment of others on individual subjectivity and bodily agency.

The fifth chapter returns to more traditional Science Fiction fare, addressing the spatialisation of representations of the computer in contemporary cinema. The chapter focuses on four films, *Her* (Spike Jonze, 2013), *Lucy* (Luc Besson, 2014), *Transcendence* and *Blackhat* (Michael Mann, 2015), which all foreground the materialisation of the virtual and simultaneous virtual penetration into the material world. All four films explore the integration and layering of computer systems and physical environments, contrasting with earlier films that maintain a degree of separation between the computer-generated and the physical. Although the films address control of composite space, *Blackhat* and *Transcendence* represent digital penetration as an act of aggression, while *Her* and *Lucy* imply that the influence of the virtual can be viewed as a liberatory tool for challenging traditional gendered spaces and increasing female agency. These films return to the connection between composite space and distributed subjectivity, as well as providing an opportunity to complete the thesis' ongoing discussion of both the advantages and dangers of the multiplication, networking and spatial extension of the self in composite material/mediatised spaces.

Despite their varied topics for analysis, each chapter uses a group of films as a starting point to examine how cinema engages its viewers in an intellectual and/or sensory aesthetic and conceptual discourse about the dynamic material-virtual spaces we increasingly inhabit. These cinematic mediascapes embody and/or heighten the spatial dynamics of our own contemporary mediascape, translating it into a cinematic language of audio-visual mapping that both draws from previous cinematic traditions and combines elements in distinctive patterns. These on-screen audio-visual worlds in turn provide insight into how our bodies and selves interact with, navigate and/or are acted upon by composite material/mediatised spaces. Unlike the films of the late 1990s which relied upon the metaphor of parallel worlds, in the films examined mediatised space remains largely embodied. As the following chapters demonstrate, however, the films offer diverse and sometimes contradictory perspectives on the issue of how these embodied composite spaces can work both to extend and to potentially compromise spatial agency.

1. From Outer Space to Augmented Space: Mediating Urban Space

The uptake of new media technologies has profoundly complicated the relationship between technological mediation and physical space, challenging the preceding primacy of conceptions of cyberspace and virtual reality and creating a complex mixture of models (Manovich "The Poetics of Augmented Space 75-76). With the proliferation of mobile computing devices and ubiquitous media, users are able to engage with different modes of imagining or representing space and inhabit various mediated spaces, whilst also inhabiting a grounded physical space. As content can now be viewed while mobile with tablets and smartphones, users jump back and forth between different cinematic, televisual and online spaces, experienced as layers of data augmenting material surroundings (77). The experience of inhabiting physical stable spaces becomes intertwined with various alternating modes for representing the world.

Contemporary cinema proves the ideal medium through which to examine the representation of the relationship between space and mediation because it "operates and is best understood in terms of the organization of space" (Shiel 5). Film organises space by manipulating "the space of the shot; the space of the narrative setting; the geographical relationship of various settings in sequence in a film; the mapping of a lived environment on film" (5). Tom Conley argues that a film can be thought of as a type of map because it "encourages its public to think of the world in concert with its own articulation of space" (1). This chapter traces the representation of the relationship between mediation and urban space in contemporary cinema not only in terms of mapping, but in terms of wider spatial and architectural design and/or organisation of space either within the frame or within the diegesis of the film. It argues that the examples of contemporary cinema discussed invoke various mediated modes of organising, representing and perceiving urban space, from the cinematic gaze to reality television's surveillance camera to the digital map, and layer these mediated modes over concrete on-screen city spaces in the same way that mobile ubiquitous media allow for the layering of various modes of mediated perception within material space. Unlike the model of the virtual city in *The Matrix*, for example, these mediated modes of perceiving space are not separate from, but instead layered upon, physical city spaces represented in the films. In this sense, modes for imagining and perceiving space unite with the "ground-level" view of space. The films analysed in this first chapter therefore visualise composite space using the model of the city.

The chapter focuses on four specific case studies all set in well-known global cities—*Run Lola Run* (Tom Tykwer, 1998), *Reality* (Matteo Garrone, 2012), *Holy Motors* (Leos Carax, 2012) and *The Bling Ring* (Sofia Coppola, 2013)—that develop complex explorations of

mediation and on-screen space, but do not invoke the trope of the futuristic city familiar from dystopian science fiction. Rather they depict our contemporary condition where mediation exceeds the boundaries of the screen and instead is layered upon our experience of material, and recognisable, reality. The chapter will begin with a brief description of the theoretical lineage of the connection between cinema and urban space before describing the privileged relationship between science fiction and the dark, paranoid, technologically advanced dystopian city of screens and machines. I suggest that the contemporary films analysed exemplify an outgrowth of science fiction cinema according to Rick Altman's opposing systems of generic classification. Altman contrasts "semantic" understandings of genre, which are constructed by listing common signs that appear in a genre (such as shot types, locations, characters and so on), with a "syntactic view" that "privileges the structures into which they are arranged" (10). Although the films discussed do not feature surface-level signifiers of science fiction, such as a futuristic, dystopian and prominently mechanised setting, they retain one of the genre's "constitutive relationships"(10) between types of technological mediation and space, because they represent physical on-screen urban spaces as structured and informed by media forms.

The first case study will focus upon Tom Tykwer's late 1990s classic *Run Lola Run*, conceptualising the film's depiction of the city space of Berlin as a remediation of video games' existing remediation of pedestrians' subjective navigation of urban environments, in order to argue that the film represents an early, and prescient, example of a cinematic mediascape. The chapter will then discuss Leos Carax's self-reflexive meditation on the past and future of cinema, *Holy Motors,* to argue that the film depicts the styles, genres and tropes of cinema and other media as prosthetic layers of mediation that inhabit and augment spatial zones within the city of Paris. Next I analyse two less surreal films that nevertheless embody mediated modes of perceiving space in their organisation and representation of public and private urban spaces. Set in Naples, *Reality* tells the story of a man who becomes obsessed with gaining a spot on the reality television show *Big Brother*, but extends its thematic considerations to its cinematic representation of domestic space by remediating the aesthetic conventions of surveillance-based reality television. In this way the film layers the modes of perception of public and private space encouraged by surveillance-based entertainment onto the on-screen environment. For example, the camera is able to glide through walls and transform private homes into open spaces, thus layering a mediated culture of surveillance onto the film's buildings. This film will be analysed alongside Jacques Tati's 1967 classic comedy *Playtime*, which similarly utilises set design, especially glass buildings, to engage with the new mode of envisioning public and private space represented by the medium of television in a much earlier era. I suggest that each film offers an insight into contemporaneous attitudes towards privacy and mediation through its mapping of

city space. The final section of the chapter will address *The Bling Ring*, which directly depicts and remediates new media technologies in its representation of the true story of a group of teenagers that staged a series of break-ins and robberies of the homes of the rich and famous. *The Bling Ring*'s integration of Facebook and Google Earth into its cinematic frame once again implies an overlap between mediated modes of perceiving material reality and the object of those modes of representation. As with the earlier examples, multiple modes of representation are layered within, and indeed begin to blend in with, grounded, physical space.

Given this layering of modes of representation over and within spaces, the chapter argues that the films analysed here begin to explore the transmutations undergone by physical bodies and identities inhabiting such composite, layered spaces.[5] Each film addresses a union and/or conflict between the physical self and the mediated self. As Aaron Tucker notes, continual mediation and remediation of the self is a prominent feature of our contemporary technological landscape, where we present ourselves across multiple social networks and avatars (78). Similarly, in *Holy Motors*, the actor must physically adorn himself with different costumes, makeup and prosthetics in different spaces, playing different characters as different spaces–and performances–require. This literal transformation from person to character can also be found in *Run Lola Run*, in the sequences in which Lola becomes an animated figure as she runs down the steps. In these first two examples, the transformations are necessary and involuntary; the actor in *Holy Motors* performs as part of his unspecified job, following orders delivered via phone, while the heroine of *Run Lola Run* spontaneously morphs into an animated figure. These heightened or imaginative metaphors for mediated transformation contrast with the more naturalistic depictions of mediated identities, and the willing desire for mediation, in *Reality* and *The Bling Ring*. In the former example, the protagonist's yearning for representation in the reality show *Big Brother* leads him to neglect his real-life family and business interests, while in the latter, the teenagers attempt to conflate their real-life experiences and possessions with their glamorous representations on social media, to their eventual detriment and punishment. The representation of the unification of one's digitally represented and embodied self as both desirable and potentially dangerous in *The Bling Ring* reflects one of the central concerns of this thesis: the way cinema represents composite space as offering inhabitants the liberating opportunity to multiply and/or spatially augment their physical selves, but may also pose a threat to the integrity or safety of the self if not navigated skilfully. The technology of Google Maps, which the young women utilise to find celebrities' houses, provides a fantasy of infinite access

[5] These transformations will be further explored in later chapters, especially Chapters Four and Five, which focus more explicitly on the implications of digital multiplicity and the conflation of online and lived space.

to the city, distinct from the more video-game-like fantasy of effortlessly navigating empty city streets explored in *Run Lola Run*. This spatial fantasy of ubiquitous mediation becomes linked to a fantasy about mediated identity. In both *Reality a*nd *The Bling Ring*, the characters aspire to the creation of a mediated self that is based upon images sourced from popular culture (in both cases they aspire to be celebrities or celebrity versions of themselves), rather than maintaining a hierarchy where their desired digital selves reflect integrated aspects of their real-world selves. In this sense, their attempts to multiply their mediated selves actually lead to a disenfranchisement of their physical selves as they become fragmented in composite space. Composite spaces are not presented in these films through the traditional image of the dystopian, futuristic city familiar from the science fiction canon, yet issues of compromised agency and a potentially threatening absorption in a mediated environment retain currency.

An Urban Love Story: The Long Relationship Between City and Cinema

A number of theorists, including Walter Benjamin and Jean Baudrillard, have conceptualised the historically privileged relationship between cinema and urban space, noting "the curious and telling correlation between the mobility and visual and aural sensations of the city and the mobility and visual and aural sensations of the cinema" (Shiel 1). Indeed, Nezar AlSayyad argues that one cannot conceive of the city without the lens of cinema because "the real city and the reel city reference each other simultaneously, in an act of mutual representation and definition" (15). In order to set the scene for the later discussion of cinematic space in the age of augmented reality and ubiquitous media, it is necessary to trace the evolution of conceptualisations of the relationship between cinematic representation and physical urban space from Benjamin to Baudrillard, from the idea of cinema mirroring the experience of the city to the inverse relationship where the city reflects cinema. This discussion will lead on to Scott McQuire's more expansive recent notion of the "media city," which acknowledges the way that new media, including photography, cinema and contemporary digital media have throughout history contributed to "distinct instantiations of modern urban space" (vii).

Benjamin suggests that film, with its techniques of montage and sensory overload, was the only adequate medium to match the intensity and abrasive nature of the city with its factories and machines for transportation (Lane 112). Given the faster pace of life implied by the traffic and crowds of a city, Benjamin argues that the moving image, i.e. cinema, is uniquely appropriate to capture the pace of the city (Gilloch 118). He equates the "shock" of the city to the sensory experience of watching a film (121). In the city, one is constantly confronted with "ceaseless bufferings and collisions" and a "multitude of stimuli" (121). Cinema, similarly, "abolishes the space where contemplation moved and all but hits us between the eyes with things as a car, growing to gigantic proportions, careens at us out of a film screen" (Benjamin, *One*

Way Street 89). Benjamin's reading of cinema is characteristic of the modernist perception that cinematic montage of different shots became a means to embody the "array of fragmentary perceptions and intuitions about the city" (McQuire 75).

If Benjamin characterises film as adopting "perception in the form of shocks" drawn from the modern city as a "formal principle" (Benjamin, *Illuminations* 171), Baudrillard, writing decades later in the 1980s, envisions an inverted relationship between space and representation when he describes American cities as modelled in the image of cinema (*America* 56). The pure American desert resembles its own image from the Western genre, while the commercialised postmodern cities are tantamount to "a screen of signs and formulas" (56). He likens the saturation of screen imagery in America to the Los Angeles freeway system, which, although it was built comparatively recently, is so central to the mobility and structure of the city that "it now looks as though the metropolis has actually been built around this arterial network" (52-55). Similarly, he claims that American reality existed before screens, but "everything about the way it is today suggests it was invented with the screen in mind, that it is the refraction of a giant screen" (55). Therefore, the city can no longer be seen as a source or model for the form of the images on screen, but rather "you should begin with the city and move inwards to the screen" (56). The experience of the city, thus, apes the experience of a film and not vice versa.

This complex relationship between cinema and the city is merely an aspect of what Scott McQuire has recently described as the "media city" (vii). McQuire explains in the preface to his study that he chose this particular term to imply that "the mediated production of urban space" represents a process that extends back into history and did not emerge with the advent of contemporary digital technology (vii). New media forms do not simply represent urban space but actively alter the way that urban space is perceived (203). McQuire's examples span centuries and numerous formats. He argues that systematic photography of Paris aligned with efforts to modernize and homogenise the city streets in the mid-nineteenth century (31), just as cinematic montage would later resemble the modernised city with its "overlay of complex sensations tantamount to the alternation of separate 'shots'" (62-63). The computer age with its focus on morphing and mutability ushered in another transformation from "hard buildings...to soft cities, structural rigidity to organisational flexibility, stable walls to responsive surfaces" (89). The "media city" can be thought of as a hybrid space: a "*media-architecture complex*" (vii). The films that this chapter examines construct their own on-screen "media cities" by layering different mediated modes within and over cinematic material spaces. They thus function as cinematic remediations of already inherently mediated cities. Before discussing the contemporary films, however, it is important to acknowledge the differences between the picture

of urban space offered by these films and their predecessor: urban-based dystopian science fiction.

The On-Screen City of Screens: Dystopian Science Fiction and the City

No genre has a stronger thematic connection to, and commitment to depicting, the technologically advanced city than science fiction (Bukatman 123). Science fiction combines "the spectacle of production technology," especially special effects and computer graphics, with "narratives about the *impact of technology*" (Landon xiv). Unsurprisingly, science fiction has also "exhaustively mapped and remapped" the locus of technological progress, the city (Bukatman 123). Both fetishizing and critiquing technology, science fiction consistently presents visions of cities dominated by machines, blending aspects that already exist with fantasies of "the urban future" (Clapp 273). Science fiction filmmakers conceive cities "as extensions of… technology" (284). *Metropolis* (Fritz Lang, 1927), for example, with its world of gigantic buildings owned by heartless companies, depicts the impact of industrialism, fuelled by developing technology (277). Although utopian counter-examples exist, in general these films are dystopian and depict cities as dysfunctional or disintegrating spaces (285). In perhaps the quintessential postmodern science fiction film, *Blade Runner* (Ridley Scott, 1982) the imagined world resembles the leftover elements of major world cities such as Tokyo and Los Angeles, but has become such a ghetto that the majority of people live elsewhere "in the off-world" (282). Therefore, science fiction tends to imagine the technologically advanced city "as a negative entity," in comparison to older, more traditional ways of life (Bukatman 123).

Added to this concern with the technological, science fiction also routinely examines the impact of media, using "both stylistic and thematic approaches to the problem of the subject in the electronic era" (Bukatman 9). Thus, the science fiction city is frequently one filled with giant screens and "viewing machines" (Stewart "The 'Videology' of Science Fiction" 161). The screen image consequently becomes "a synecdoche for the entire technics of an imagined society" (161). Consider the banks of screens in *Minority Report* (Steven Spielberg, 2002). In this film, Tom Cruise plays a futuristic detective whose job is to track down criminals who have not yet committed a crime, but are predicted to commit crimes by precogs, whose visions appear on monitors. Thus, real actions that arguably will be committed become fused with mediated visions. The film therefore comments upon the increasingly blurred distinctions between human agency and virtual avatars in screen culture, whilst simultaneously addressing the ethical dilemmas posed by progressively more intrusive surveillance measures. Although *Minority Report* develops an especially complex relationship between screen and reality, it is difficult to find a modern science fiction film that does not imagine a future saturated in both security or video monitors and screens. The hyper-real cityscape dominated by obtrusive advertising and

enclosed motorways of films such as *Blade Runner* and *The Fifth Element* (Luc Besson, 1997) has become a generic standard, while a number of Hollywood dystopias (prominent examples include *Minority Report and Strange Days* (Kathryn Bigelow, 1995) reproduce fears around the manipulation of digital images by corporations and institutions (Sterba 272-273).

John Gold offers a useful, if somewhat too rigid in its periodization, lineage of the development of science fiction. He posits that early science fiction, such as *Algol* (English title *Power,* Hans Wreckmeister, 1920) and the epic *Metropolis* envisaged the future as "allied to giant cities, particularly ones with a pronounced vertical dimension" (Gold quoted in Gold 339). With *Metropolis,* Lang imagined "a city of soaring skyscrapers and high-level bridges towering over cavernous, restless traffic arteries" (339) Gold suggests, however, that after "1960s socio-cultural and political protest and the rise of the environmental movement" science fiction iconography transformed from emphasizing the industrialised vertical city to "the city of *future noir*" (339). Gold describes the city of these films as "a city of perpetual night lit only artificially; sometimes one where the sombre skies constantly teemed acid rain; and frequently a city in which the air was heavily stained by industrial pollution" (340). He cites examples of films set in a futuristic dark "crumbling city" marked by man-made decay such as *Soylent Green* (1973), *The Terminator* (1984), *Robocop* (1987) and *Total Recall* (1990) (340). This iteration of the science fiction city was codified by *Blade Runner,* which depicts a future Los Angeles marked by "urban decay, deprivation, malfunctioning experiments in genetic engineering, and environmental pollution" (340). The city of *Blade Runner* with its giant digital billboards containing messages from the Tyrell Corporation, as compared to the factories and skyscrapers of *Metropolis,* further reflects the postmodern shift. Under postmodernism, cities do not necessarily remain spaces of production for corporations, but continue to be markets for consumption of products (AlSayyad 126). Companies thus must focus on effectively "constructing sign systems and imagery" that transforms space into "an environment of hyper-commercialism" (126). In *Blade Runner,* the city functions largely as an advertisement for the Tyrell Corporation. Writing in 2001, Gold tentatively suggests that the next phase of the science fiction city, popularised by the phenomenally successful *The Matrix* (Wachowski Brothers, 1999), revolves around the virtual city (341). This iteration of the technological city entails "the entrapment of human beings in virtual environments" (341).

The vertical, future noir and virtual cities have their semantic differences, but all present technology and urban space as mutually constitutive. I would add to this list the notion of the "augmented city." Although the films discussed at length in this chapter do not reproduce the tropes, futuristic setting or iconography of the dystopian science fiction city, they expand upon the consistent depiction of technology as a determinant of space in science fiction. Unlike in the

virtual city described by Gold, mediation is not a completely separate level to the so-called real world of the film, but rather mediated modes of perceiving and representing space structure and intertwine with the experience of physical space. They thus abandon the "semantic" elements of the genre but borrow one of the core "syntactic" elements (Altman 10). The films discussed below in this chapter highlight the augmented city. They take from science fiction the element identified by Clapp of visualising an urban environment as an "extension… of technology" (284), but eschew the generic trappings of a futuristic setting and iconography of giant screens.

Despite the rejection of a futuristic setting, these films nevertheless feature an aspect of fantasy as they create ontological ambiguity by layering a mediated perspective upon an existing geographical material space. This sense of multiple overlapping worlds distinguishes them from other genre works that have utilised and embodied mediated modes of vision. High-tech thrillers, such as *Snake Eyes* (Brian DePalma, 1998), have organised and represented their diegetic spaces according to the principles of technologically-enhanced vision, especially surveillance. These films, however, emphasise epistemological questions about the nature of knowing and recording the world, rather than ontological or phenomenological ones about levels of experience. By contrast, each of the films discussed in this chapter juxtaposes material city environments with mediated modes of vision that act to denaturalise the physical environment or layer a fantastical, enhanced mode of perception over stable reality. Recall Sobchack's claims that science fiction's appeal rests upon "a confrontation between and mixture of those images to which we respond as "alien" and those we know to be familiar" (87). In each of the films discussed in the following sections, layers of mediated perception which operate according to their own principles of spatial relations, and which could thus be described as "alien" to material space, combine with identified physical spaces of famous cities. Often these mediated modes of perception offer access to a fantasy level that somehow augments mundane reality: in *Holy Motors* the realms of cinema, music videos, fashion and digital imagery are layered upon the crumbling spaces of Paris; in *Reality* the gaze of the reality television camera transforms ordinary people into celebrities worthy of watching; in *The Bling Ring*, the mapping technologies of Google Earth make glamorous celebrity homes visible to ordinary teenagers. Each of these films thus reproduces the uncanny effect of being simultaneously in a stable physical space, but with access to endless layers of mediated spaces.

Run Lola Run differs slightly from the later films as, unlike the other films in which mediated modes of mapping space seem to sit on top of a stable material environment, it instead transforms Berlin into a video game-like world, borrowing the streets, but conceptualising them as if they were in a video game. The film is important, nevertheless, because, unlike its other late 1990s counterparts, it refuses to distinguish between a diegetic 'real world' and a landscape

structured by the logic of media forms. Furthermore, it implies a complex and interdependent, rather than binary, relationship between the experience of material and of virtual space, drawing parallels between the spatiotemporal characteristics of video games and the experience of moving around a city on foot.

Articulating Berlin In *Run Lola Run* (Tom Tykwer, 1998)

Although indubitably the earliest of the films discussed in this chapter and thesis, and thus an antecedent to the loose group of films that constitute the majority of the analysis, Tom Tykwer's *Run Lola Run* (1998) enacts a strikingly similar process to the later films. *Run Lola Run* subsumes any notion of fixed mapped space beneath an entirely subjective and fluid mode of exploring the city of Berlin, reflecting not only the medium of the video game, but, as Wendy Everett argues, the way in which pedestrians navigate urban environments (168).

Run Lola Run tells the story of Lola (Franka Potente), whose boyfriend, Manni (Moritz Bleibtrou) has left a bag full of money, which he was supposed to deliver to his mobster boss, in a subway. Now Lola must find and deliver 20,000 Deutschmarks to Manni before he, in desperation, commits a robbery to acquire the money. The film proceeds to show, in three twenty-minute segments, Lola's attempts to successfully complete this task (she succeeds on the third attempt) with slight variations in each attempt; for example, in one attempt Lola falls over a dog, while in the subsequent attempts she learns to avoid the dog on the stair case. Allan Cameron expands upon the structural similarities between the film's narrative and the logic of video games, noting that the film's "tripartite structure (comprising two failed narratives followed by a successful one) is immediately reminiscent of the classic arcade-game set-up, where players have three 'lives' in order to achieve their mission" (74). The film also resembles a modern computer game in that "Lola learns techniques during her unsuccessful attempts that allow her to complete the mission on the final pass" (74). For example, Lola is unable to operate the safety catch on her gun in the first iteration of the story, but she learns to master it in subsequent versions (74). Like an interactive video game where a player's choices intervene in the game's story, the film operates on a narrative logic of contingency based upon Lola's actions and the consequences of these actions (76). The city environment thus becomes a set of options or possibilities, functioning as "a database of characters, tools and situations" (Cameron 75).

Modes of producing and exploring urban space drawn from the medium of video games guide the film's representation of Berlin as a "virtual setting," where spatial elements exist only when characters explore them (Grieb 162-163). Discussing video game spaces from the 1990s such as those of *Doom* and *Tomb Raider*, Mark J.P. Wolf notes that advances in graphical

technology allowed for "three-dimensional graphics that can change in perspective during real-time interaction" in contrast to the "simple blocky graphics" of earlier games (52). In these games, part of the pleasure of gameplay stems from "control over point of view, allowing one to choose which spaces appear on-screen or off" (52). While Wolf acknowledges that many games from the period feature a rudimentary or iconic orientation map (67-68), Margit Grieb notes that in other video games "there exists no topographical representation of the game space one is supposed to traverse," but rather space is encountered only when the player enters into that space (162). In a video game, spaces are designed to be interactive and any areas or objects that do not offer interactive potential are simply excluded from the environment (163). This spatial feature characterises *Run Lola Run* in which, for example, the streets appear empty of traffic or pedestrians when these elements are of no use to Lola as she searches for Manni (164). The streets are consequently also devoid of any signifiers of Berlin's troubled history, thus divorcing Berlin from its real-world associations and turning it into a non-city or interchangeable template (163).

Yet this "virtual setting" in *Run Lola Run* can be viewed as a remediation not only of video games, but of the subjective experience of material space as theorised by Michel de Certeau (Everett 168). Thus, the film is a remediation of video games' own existing mediation of a material experience. Grieb observes, rather confusingly, that "although the commonly encountered architectural terminology tempts us to connect the virtual with the physical, it is really only movement that defines most videogames' 'spaces'" (163). This distinction between the virtual as defined by movement and the physical as fixed, however, ignores the way in which pedestrians articulate their own paths through material environments. While a city grid or map is fixed, pedestrian experience is fluid (de Certeau 97-99). Michel de Certeau argues that pedestrians bring cities into existence as they explore them (97-99). The city contains a number of possible pathways and "interdictions," such as walls, that limit these possibilities, but the walker

> actualizes some of these possibilities. In that way, he makes them exist as well as emerge. But he also moves them about and he invents others, since the crossing, drifting away, or improvisation of walking privilege, transform or abandon spatial elements (98).

Therefore the medium of video games can be understood as already a remediation of the subjective experience of exploring the city. In *Run Lola Run*, Tom Tykwer remediates this existing virtual remediation of a material experience, but takes the remediation process two steps further. If the video game remediates the actual experience of walking in the city, *Run Lola Run* uses the specific conventions and visual hallmarks of this virtual remediation (i.e. video games)

to structure the on-screen physical world of the film and operations of the city within the diegesis, thus once again materially embodying a virtual remediation of the physical. This material embodiment is then transmuted back into the virtual in the final remediation: the film itself. In this sense, the city space in *Run Lola Run* represents perhaps the ultimate "media city."

Run Lola Run presents a city that operates according to a set of variables but within certain parameters, thus mirroring both the set commands and range of actions available to a player in a video game a*nd* the city streets that provide a system in which the pedestrian moves. Quoting German football coach, Sepp Herberger, the police officer in the opening sequence of the film informs the audience that, "The ball is round, *the game* lasts *90 minutes*, everything else is pure theory." While obviously referring to the rules of soccer, the quote implies a situation in which actions are infinitely variable, but participants must use the tools provided and adhere to the timeframe. Similarly, in a video game the player can choose where and how to move, but only from a given set of commands and a given number of paths/directions. In the film, Lola can choose whether (and how) to interact with the items and spaces in her environment, but she cannot alter them, just as she cannot alter the amount of time that she has to perform a task. This idea of variation within a system of options also relates to the way that a pedestrian articulates their own path. De Certeau likens walking to the act of writing, suggesting that just as a writer constructs words from linguistic systems, a pedestrian constructs a path from a cartographic system (98). In this way, by taking a particular path or direction, the walker produces "a space of enunciation" (98). In *Run Lola Run*, Lola articulates and re-articulates the film's diegetic space in each iteration of the story, but within the available parameters or rules of the city/'game.' Interestingly, this limited agency within the system suggests that the fantasy of urban navigation in mediatised space offered by the film does not significantly increase inhabitants' ability to negotiate city spaces as compared to material experiences of urban environments, even as it appears to offer increased choice and customisation.

The film further explores another parallel between de Certeau's description of city walking and Grieb's theorisation of video games: the lack of a topographic map (Grieb 162). De Certeau (93) points out that city planners are able to envisage a city from above, but ordinary people experience the city on ground level and are thus not able to conceive of the city grid as an overhead map. *Run Lola Run* visually explores this transformation from the topographic to ground level in its opening sequence (Everett 168). The film opens with a shot of a hanging pendulum shaped in the image of a monstrous face, before the camera moves up the pendulum to show a clock face with gargoyle-like decoration; this type of clock would usually be hanging up high at the top of a building in a prominent architectural position. The gargoyle's mouth opens and the camera tracks into it. After a cut to black, the camera is suddenly positioned on

the street level as if moving through a crowd of people, all walking in different directions. We are thus thrown into a disorientating space amidst, rather than looking down on or at, the crowd "who, lacking perspective, are entirely caught up within its [Berlin's] fractured and dislocated mobility" (168). After the police man delivers the quote telling the audience that the "ball is round…" and so on, he kicks a football up and the camera follows it into the air, showing the crowd of people who have now formed the letters of the film's title in German from a high angle. Metaphorically, this formation indicates that the space, and world, of the film *Run Lola Run* will be constructed by the movement of pedestrians. As the ball comes down, the camera also plummets back down to the ground level, abandoning the bird's eye view.

In a more figurative sense, the film also invokes the video game as a unique type of map, or at least as a method for mapping urban space, and explores this digital mapping system at the ground level by depicting a city presented in its spatiotemporal features as if it were a video game. As this game-like city is not contained within a screen or separate ontological plane within the film's diegesis, it appears not as an image of a city within the film but as the city itself at ground level. Released in 1998, *Run Lola Run* significantly predates the films discussed in subsequent sections of this chapter and can thus be considered an outlier, yet nevertheless a veritable mediascape. Similarly, the film invokes the metaphor of layered space like many of the films discussed throughout this thesis. When Lola runs down the stairs on her way out of the building, she is transmuted into an animated version of herself, appearing framed by the television screen that her mother watches downstairs and then as a full-screen animated character. Even though these sequences use the more traditional image of the television screen as a metaphor for mediated space, they also negate the fixed ontological borders of the screen as Lola runs through into and through on-screen world, which mirrors the real-life staircase, augmented by its representation using animation. In this way, the television screen acts as a layer of mediation within the physical environment of the building and Lola passes through this animated layer as she moves down the stairs. The movement through this layered virtual space of animation is seamless as Lola continues without stopping through the animated segment and out into the city streets. Such a transformation, not from one separate world to another, but rather through layers of mediation, resonates with this thesis's prevailing conception of mediatised space as integrated with material environments. On the other hand, the use of an animated version of Lola here retains a sense of visual disjuncture and fragmentation. The intrusion of jarringly non-realistic graphical elements contrasts with later films (such as those analysed in Chapter Four) released after the massive uptake of ubiquitous media, in which graphical symbols, texts and elements that resemble drawings are integrated into otherwise material spaces in the same frame as a matter of course. In this sense, *Run Lola Run* is extremely

innovative in its conflation of mediatised and material space, yet its earlier socio-technological context nevertheless bears an influence on the film's aesthetic because of this sense of jarring disjuncture between hyper-mediated graphical elements, rather than the more transparent integration of digital/material elements exhibited by later films.

Cameras, Ships and Automobiles: Driving through the Cinematic City in *Holy Motors*

If the pedestrian experience of urban space was already subjective in terms of articulating physical paths, portable mediated experiences provide additional levels of subjective engagement. With increasingly portable media, especially the now ubiquitous smartphones, as well as the development of QR codes that enable material objects to be tagged with links to digital content, mediated experiences are no longer physically confined to particular spaces and locations, but rather take place in a diverse range of places within the physical world (McQuire 204; Elwell 235). *Holy Motors* explores this migration of cinema (as a synecdoche for media more generally) from "specialised" sites (McQuire 204) into the wider world, whilst also addressing the relationship between performance and embodiment.

In the film, an actor named Oscar (Denis Lavant) travels in a limousine, driven by a sage female chauffeur, between "appointments" around the city of Paris, playing a variety of roles during encounters with different characters in different settings. This series of encounters is woven through a story about Oscar and his own life, including his dealings with his daughter when he picks her up from a party. Oscar must thus switch between private everyday encounters and public performances multiple times per day. The limousine travels through a city in which a different medium or cinematic mode defines each new spatialized destination and each engagement. Similarly, in each new mediated experience, Oscar must perform a new character, transforming his body into nothing more than a base onto which characters are applied. While the film does not reference social media or online identities, the continued mediation or augmentation of Oscar's body as he moves through a mediatised city resonates with the increasing prominence of digital identity performance in social media profiles and avatars. In different digital spaces, users alter and customise their identity presentation depending upon the context and purpose of the network; for example, one may have a professional profile photo on one network while presenting oneself in an entirely different manner on a personal account. Increasingly, bodily presence is augmented with digitalisation, reflecting our many selves (Tucker 78). Thus, the mediated context of the virtual space determines our performance, just as Oscar's setting and role determines his. Although performance is of course intrinsic to acting in all forms and locations, Oscar's movement though the city enables a closer parallel between his relentlessly mediated self and the audience's own everyday mediated performances, because he is not contained on a stage in a specific performance space. Thus, Carax suggests that

performance is a required aspect of negotiating contemporary space, even if one does not inhabit a theatrical space. In contrast to the examples discussed later in this chapter, this endless performance is imposed upon the increasingly worn out Oscar, whose individual agency seems reduced as his own identity is subsumed by the characters he performs.

The film constructs a cinematic version of Paris that does not resemble the hyper-real science fiction city of screens and machines, but instead layers a number of different media modes and forms onto decaying physical spaces like a prosthetic enhancement, just as Oscar dons various costumes and prosthetics and just as ubiquitous media allow us to add an additional and variable, removable mediated layer to stable physical spaces. In one sequence for example, Oscar, dressed as a mute and deformed tramp, disrupts a fashion shoot in a park starring the glamorous Eva Mendes and the sequence becomes defined by the poles of glamour and oddity that gives fashion photography its peculiar eccentricity. In another, Oscar performs a motion capture love scene that is as much ballet as cinema, in a striking suit covered with brightly lit sensors, where the physical presence of the actors is literally intertwined with a mediated view or mode. Other sequences resemble climactic moments from films, such as a death scene or action showdown. Cinema is no longer just at the theatre on a screen, but rather media are imagined as spatial zones and mediated, variable modes are layered over a crumbling city. As with Berlin in *Run Lola Run*, Paris is no longer defined by iconic tourist attractions or historically significant architecture, but instead becomes a template on which a mediated layer can be placed.

Physical movement is a significant metaphor in *Holy Motors*. Unlike in *Run Lola Run* where the movement is almost entirely directed by Lola's own body, in *Holy Motors* Oscar travels by car and thus his movement through a mediated city is already mediated by his mode of transport, and controlled by his driver. Allan Cameron and Richard Misek have written of the way in which transport metaphors work in 'intelligent' blockbusters, such as *Inception* (Christopher Nolan, 2010) and *Source Code* (Duncan Jones, 2011), to promote ambiguity between technological and psychological movement (117). These films "revolve around a notion of transport that brings together psychology, movement, and mediation": the characters are transported through physical space and mental space simultaneously, thus spatialising the idea of "media 'transport'" (117). In *Holy Motors*, movement across a city of cinematic moments comments on the proliferation of spaces of reception with mobile ubiquitous media and the way in which cameras, and other media, are increasingly embedded in our material environments to the point that they become invisible. In this way, the film's use of transport metaphors for mediated psychological travel, arrangement of spatial geography and the

movement between city spaces in the film reinforce a complex layering of modes of visualising space within material spaces.

Cinema constitutes a movement through time and space and as such cannot be separated from the concept of travel (Ruoff 6). Jeffrey Ruoff argues that cinema should be considered as a form of transportation comparable to any other because "there are parallels as well as divergences in the experiences offered by ocean liners, airplanes, automobiles, and moving pictures" (8). In this sense "we should theorize the cinema as a mode of transportation and the automobile as a mode of representation" (8). Similarly, Anne Friedberg notes that the cinema screen acts as a "radical metaphor for the windshield" as both cinema and cars enable a particular variant of time travel (*Window Shopping* xi). Cinema allows the viewer to metaphorically escape into an imaginary world through a screen, while the experience of driving alone "transforms the windshield into a synoptic vista" (xii). Furthermore, cinema is characterised by a gaze that is both "mobilized" and "virtual" (2). The gaze is "virtual" because it is "a *received* perception mediated through representation," but also mobilized because it enables a movement "through an imaginary elsewhere and an imaginary elsewhen" (2). The mobilized aspect of this gaze thus finds its origins "in other cultural activities that involve walking and travel" (2). In this way cinema possesses a close affinity with "machines that changed the measure of space and time," especially "machines of mobility" (3). Film thus apes "not the stable site of a stationary building but the variable vector of a moving vehicle" because it allows one to inhabit multiple and shifting points of view (McQuire 184). This connection between cinema and mechanised transport has been explored in numerous films, perhaps most famously in Dziga Vertov's visual treatise on the language of cinema *Man With A Movie Camera* (1929), in which Vertov shows his cameraman capturing movement from a car in motion, with a camera attached to a bike and from a low angle as a tram races towards the frame. In the final sequence of the film, a crowd viewing the film is cross-cut with footage of moving trams, highlighting the ability of both technologies to expand and contract temporal and spatial experience. It is unsurprising, then, that modes of transport play a significant part in Carax's reflection on contemporary cinematic mobility in *Holy Motors*.

The film's opening sequence invokes the image of a ship, associating this older and inherently collective mode of transport with the experience of viewing a film in a cinema. In the opening sequence of *Holy Motors* we see a decaying 16mm piece of black and white footage of a naked man doing some form of exercise, clearly an actuality and referencing the long history of cinema exhibition. We then see the audience sitting motionless in the dark, but the sounds of traffic can be heard in the background, thus implying the connection between cinema and travel. As the audience continues to watch, the film appears to switch to a modern action film as we

hear a man yelling “no” and the sounds of a fight. As if to announce a traversal from the world of the film into some undefined backstage area behind the screen, a ship’s foghorn sounds, much as it would if a ship were approaching land, thus once again equating a journey over physical sea with a journey through a film. Carax cuts to a sleeper (played by himself) lying on a bed, also accompanied by ship sounds of seagulls and lapping waves, almost as if he is in a cabin below deck. He arises and wanders over to the window where he looks out at the city, but the soundtrack continues to play the incongruous ship sounds. The sleeper walks over to a wall and feels the surface until he eventually comes across a keyhole. The sleeper’s finger is revealed to be a metal key, which he uses to unlock the wall, before opening the door through into the cinema. This fusion of finger and key implies that the world contained in the cinema originates from Carax’s body, and by extension, stems from his mind. As Carax walks through the projection booth and opens the door to the cinema itself, the sounds of the sea increase in volume and it is revealed that the screen is filled with an image of the sea. He stands above the audience, with the camera placed behind and slightly above him, as he looks down upon the seated audience from the balcony accompanied by now loud sounds of seagulls and waves; both visually and aurally the shot resembles a person standing on a ship’s deck, looking out at a sea of people. When Carax cuts away from the cinema, we see an image of a girl’s face through a circular window, resembling that of a ship. Carax then employs a shot of the complete house which, in its white architecture, indeed looks like a ship with geometric shapes piled upon one another, a large curved deck adorned with rails on one side, towers and of course small circular windows. It is from this house that Oscar emerges and walks to meet his limousine. In this way, Carax forms an association between ships and both the home and the cinema. Ship travel implies a journey, as does cinema, but also a journey that is slower and outmoded, as ship passage has been largely replaced by commercial air travel. In this way, the now old-fashioned experience of viewing a film in a specific place (i.e. the theatre or the home) and with others in the dark becomes linked to an older form of transportation.

The film thus juxtaposes the ship as a mode of transport with more flexible and versatile car trips. Comparing the significance of trains and cars as models for cinema, Ruoff notes that “automobiles freed travellers from the standardization of railroad time-tables and established routes... While the train resembles classical Hollywood narration moving toward its fixed destination, the automobile stands for the episodic travelogue, where detours beckon just around the bend” (7). Although Carax draws a comparison between cars and ships rather than trains, Ruoff’s ideas can be applied to the film’s juxtaposition of different forms of transport, and of experiences of media. Unlike a ship where one is a passive passenger and can preserve the illusion of remaining stationary even while travelling, driving a car implies a degree of self-

direction and agency. As Ruoff notes, one can diverge from a set path with a car (7), whilst a ship generally follows a straight line with only scheduled stops. Similarly, the cinematic experience is physically passive, stationary, fixed and offers little choice of location, whereas mobile and portable media allow one to choose when and where to engage with media. Furthermore, the ship is an inherently collective form of transport, similar to viewing a film in a theatre. The car, on the other hand, is a much smaller unit and "entails monadic isolation" (Lamarre 114). A car encloses the driver in an interior even as they travel through the outside world, as well as obscuring one's vertical perspective (112-115). The car can consequently be compared to personal media devices, such as the MP3 player or smartphone, which allow users to develop private media experiences in public places (Morley 219). Although such devices certainly can be used to enable connection and collective communication through wireless Internet technologies and creative group projects, they nevertheless also offer a more versatile and customised viewing experience than the cinema can hope to provide. In *Holy Motors,* then, the significance of the narrative structure (with Oscar moving around the city to various engagements that resemble cinematic modes and moments) lies in part in the mobility and flexibility of the automobile when compared to the ship as a mode of transport, although the car as a symbol of individual freedom, and customisation of personal space, is somewhat hampered by the presence of a chauffeur who takes Oscar to pre-arranged appointments. In this sense, Oscar's movement is still directed by outside forces.

Holy Motors extends cinema and other media, such as fashion photography and music videos, into physical spatial zones that lie next to one another and can be traversed easily. All the representations of cinema and media experiences after the first sequence take place not in the theatre, but out in locations around the city of Paris that Oscar travels to via his limousine, much as mobile ubiquitous media enable us to travel between different media. As Carol Vernallis notes of contemporary digital cinema more generally, segmentation reflects the experience of using (increasingly mobile) devices that enable us to switch back and forth between different clips and sections from a diverse range of media all contained within a single device (*Unruly Media* 277). She identifies a "mixing-board aesthetic" (5) that enables a film to "shuttle back and forth across genres and media" (8). In *Holy Motors* each segment appears to reflect a different mode or genre of film and/or media. In one extraordinary sequence, Oscar leads a band of accordion players around a dingy street lit with candles. The camera movement seems suddenly to be driven by the music, matching its pace with the rhythm of the audio track, as Vernallis argues is typical of a music video, where the visual features are dependent on the qualities of the music ("Strange People, Weird Objects" 112). Carax thus remediates the conventions of a music video, echoing Vernallis's observation that many films now routinely

include sequences resembling music videos (*Unruly Media* 8*)*. Many of the encounters or "appointments" as Oscar describes them act as synecdoche for a certain film genre or style, such as an action sequence or, memorably, an oddly uncanny musical number set in a theatrical, dilapidated ornate building and starring Kylie Minogue. As with the sequence resembling a music video, the formal properties of this sequence also replicate the visual conventions and tropes of the genre it represents. Kylie Minogue appears on the balcony, for example, and the camera cranes up to her in time with the soaring music, alluding to the sweeping cameras that accompany musical flourishes in film musicals like *The Sound of Music* (Robert Wise, 1965). The camera movement, however, is stilted and jagged, suggesting a fading or disintegration of traditional styles.

What sets this stylistic choice apart from other postmodern examples of self-reflexive sampling and segmented MTV aesthetics and more specifically aligns *Holy Motors* with the paradigm of augmented reality, however, is the strong sense that these aspects of mediation are intertwined with physical, concrete space represented within the film. There is a jarring contrast between the materiality of the physical, grounded spaces that the film shows and the levels of mediation intertwined with these spaces. Beneath the layers of self-reflexive allusion to various media forms, the physical locations in *Holy Motors* are often antiquated and in states of decay, thus there is sense of both the tangible and precarious materiality of these spaces and, conversely, that although the physical world, like the traditional cinema theatre, may fade or recede over time, endless layers of mediated space can be prosthetically added to and removed from these spaces. In this sense, the film picks up on some of the aspects of science fiction's dystopian city of decay, without invoking the tropes described by Gold of a futuristic setting and destruction caused by unbridled scientific progress and experimentation (340). Furthermore, the film emphasizes the idea of a concrete car moving between physical spaces and thus implies a dynamic movement of both bodies and minds that contrasts strongly with films that invoke virtual reality such as *The Matrix*, in which physical bodies are locked into stationary pods whilst minds move around inside a simulated, virtual urban environment. Although the style in which each sequence is shot mirrors the form of a genre or medium, we do not see this clearly mediated environment as contained within a screen or machine, rather each mode is aligned with a spatial location. The screens that signify the boundary or framing between materiality and mediation are thus removed, implying a mingling between the two and an extension of media out into the physical city. This extension connotes the migration of media from contained sites of engagement into broader material spaces (McQuire 204), where material experience is so entrenched in media that neither the cinema screen, nor the camera should be apparent. In the thought-provoking final scene of the film, a set of limousines, which have all carried around

actors like Oscar, talk together in the "Holy Motors" garage. One contemplates their future obsolescence, and another agrees that "men don't want visible machines anymore." This quote explicitly addresses the concept of increasingly integrated and transparent interfaces in the contemporary media landscape. Although the film is clearly a meditation on cinema, it comments equally on the broader relationship between mediation and space. Just as cinematic moments and modes become spaces to be driven to within the urban landscape of Paris in *Holy Motors*, so too ubiquitous media connote a mixed layering of mobile mediation with our embodied experience of physical space (Elwell 235). In this way, the formal properties and spatial dynamics of *Holy Motors* parallel the relationship between mediation and physical surroundings in conceptions of augmented reality.

If *Holy Motors* employs self-reflexivity about the evolution of cinema, *Reality* finds its source material in the surveillance camera aesthetic of reality television and remediates the genre's visual conventions to structure its representation of public and private urban space. Like *Holy Motors*, the film spatializes the formal conventions of a particular medium and allows these conventions to seep beyond the borders of a screen and into material environments. The following section will examine *Reality*, drawing a comparison to Jacques Tati's epic urban comedy of technological malfunction *Play Time*[6], in order to argue that the film presents a vision of space transformed by the new cultural values of reality television and constant mediated surveillance. The model of public and private space implied by its representation in surveillance-based entertainment becomes intertwined with the physical space of the houses in *Reality*, thus once again demonstrating a complex layering of mediated modes for imagining spaces and material spaces.

Reality Television and Television Realised: The Spatialisation of Television in *Reality* and *Playtime*.

Although both Jacques Tati's renowned 1967 exploration of the mishaps encountered by a bumbling man, Mr Hulot (Jacques Tati), in a high-tech world and Mateo Garrone's contemporary tale of a fishmonger's growing obsession with scoring a place on the Italian version of *Big Brother* are separated in release dates by a period of more than fifty years, the two films share a concern with an urban environment modelled in the image of a form of media and conceived according to the spatial dynamics of that medium. In this respect, they also share some characteristics with the science fiction genre. Indeed, *Playtime*, with its interwoven

[6] Many thanks to Scott McQuire for his very useful suggestion that I include *Playtime* in my thesis in relation to the discussion of media and glass architecture, offered during conversation at a Media Ubiquity: Spaces, Places and Networks symposium held at the University of Auckland, 31st October 2014.

episodic narrative that depicts both the continual comedic errors and wanderings of a businessman and a party of tourists in a fictional glass-dominated Paris full of modern office blocks and apartments, constitutes a work of speculative fiction to the extent that glass and steel were not yet prominent materials of construction in Paris when the film was made (Bellos 248). In this way, Tativille was a prediction that has since become manifest, rather than a historical reality (248). *Playtime* can be considered an antecedent of the contemporary cinematic mediascapes described in this thesis, which often heighten or exaggerate existing ontological relationships between mediatised and material space.

Whilst *Reality* employs a contemporary setting, it nevertheless represents an urban environment in the image of reality television and of surveillance culture more generally. In the film's narrative, small-time fishmonger and part-time con man Luciano (Aniello Arena) and his family become besotted with *Big Brother* contestant and local hero, Enzo (Raffaelle Ferrante). Inspired by Enzo's success, Luciano auditions to be a contestant on the show and, after being shortlisted, becomes progressively more paranoid that he is being watched by spies for the television show. Eventually, the unsuccessful Luciano breaks into the set of the television show to take his place in the artificial house. The film conveys the profound effect on spatial relations of forms of entertainment like *Big Brother* and of surveillance in society through its visual features and representation of private space in which a moving camera seems to pass through the walls of a house. In both *Playtime* and *Reality*, a mediated model for understanding and defining the relationship between public and private space determines a physical environment. In the former, glass architecture replicates the integration of public life and private domestic space represented by television, while the latter utilises camera movement and open sets to exemplify the destruction of boundaries and walls represented by surveillance culture. The mode of perceiving space thus becomes intertwined with the material experience of space. Both films therefore go beyond reflecting upon television specifically. In each film, a mode of understanding spatial relations derived from media transforms the material characteristics of an urban environment. This close relationship between mediated modes for understanding and representing space and physical on-screen space produces layers of mediated space that become embedded in the physical environment to the extent that the virtual representation of space and the concrete experience of space combine to form a hybrid.

Playtime and *Reality* both remediate and realise the characteristics of (reality) television through their depiction of public and private space, focusing in particular on notions of surveillance and visibility. Both films not only refer to and represent television within their diegesis, but incorporate the medium's aesthetic qualities into their formal features. In each film, television's effect on or relationship to space is remediated. Tati envisaged a city dominated by

glass architecture, which reflected in part upon the incursion of the public world into the home via the television. Arguments around the value of glass as a material for construction "set the scene for a convergence between window and screen" (McQuire 162). This convergence would later be exacerbated by modern electronic media (178). In *Playtime*, Tati associates glass architecture with the impact of media by depicting home interiors, in which the characters are shown watching television, as if they were television screens viewed from the street through square glass windows. As media have continued to develop and evolve into the twenty-first century they have not only penetrated the home, but private interior life has increasingly "become the subject of media attention in new ways" (178). Reality television shows, such as the *Big Brother* format, invoke the principles of complete transparency implied by glass architecture, but replace the glass windows with concealed cameras capturing all angles (187). It is thus fitting that *Reality*, which takes the psychological reach of reality television as its subject, dispenses with the glass windows of *Playtime* and instead allows the film camera to roam through the private interiors of the characters' domestic space, remediating the all-access aesthetic of the genre that constitutes its subject.[7] Detailed analysis of a significant sequence from each of the two films reveals the way in which they each realise the relationship between public and private life established by television and reality television respectively in spatial, and physical, terms.

Playtime presents an urban environment that is continually viewed through a screen or screen substitute. As Anne Friedberg notes, "the window has a deep cultural history as an architectural and figurative trope for the framing of the pictorial image" (*The Virtual Window* 5). Tati utilises this connection to explore the relationship between image and materiality. Sharing Carax's concern with transportation modes and the different experiences offered by each mode as a means to explore the world, Tati has his tourists in *Playtime* travel around the city in a tour bus that doesn't allow them to engage with the city in a visceral or interactive manner. They are contained within the bus and isolated, viewing only that which passes by their windows. Near the beginning of the film, we see a tourist's face reflected in the rear view mirror

[7] Another relevant antecedent for *Reality* can be found in Peter Weir's *The Truman Show* (1998) in which the film's protagonist, played by Jim Carrey, progressively realises that his life has in fact been taking place on the set of a television show, of which he is the star. The film uses television-style aesthetics, including bright colours reminiscent of sitcoms, integrated direct-to-camera advertising material and repetitive dialogue, to establish the self-contained television world. It does, however, acknowledge that this 'reality' exists within a television studio, outside of which there exists a normal world, even if the film's protagonist is initially unaware of this distinction. By contrast, *Reality* utilises techniques borrowed from reality television to present the physical spaces of Naples, suggesting that the perspective of reality television structures experiences both on and off screen, and does not bracket this mediated perspective.

of the bus as the tourists chatter asking where the monuments are, suggesting a limited or trapped mode of perception. This sense of isolation and confinement becomes a running theme in the film. For example, when Mr Hulot stumbles across an exposition of office products, we see a salesman proudly demonstrating office cubicle doors that are made of "completely insulated material" and can be closed silently. Workers and tourists alike find themselves cut off from sensory experience. When the tourists and the audience do catch glimpses of iconic monuments of Paris, such as the Eiffel Tower, they occur as reflections in the glass doors of the central travel agency (Bellos 249). In this way, the physical presence of the city of Paris becomes like an image viewed on a screen.

Yet if the outside world is seen through a glass window acting as screen, this window "works two ways" as it equally allows spectators into private interior space, thus it "turns the outside world into an image to be consumed by those inside the house, but it also displays the image of the interior to that outside world" (Colomina 8). In an oft-analysed sequence in which Mr Hulot's friend shows him his new television, Tati marries this dual function of the glass window to the position of the television in the home by representing the inhabitants of an apartment building watching their television sets through large glass windows that themselves resemble television screens. Paul Virilio has argued that the television screen constitutes a third order of windows, following the basic door that allowed people to pass through and the window that allowed light to pass through (McQuire 181). This "third window" redefines spatial relations because it "no longer opens onto adjoining space but instead faces beyond the perceptible horizon" (Virilio 79). The television acts to bring public life into the home through news and current affairs, but also isolates people physically as they are less likely to leave their domestic environment. As Anne Friedberg puts it, electronic screens, such as the television and subsequently the computer, now take the place of the "architectural window" (*The Virtual Window* 11). In *Playtime*, Mr Hulot visits an old friend from the army, Mr Schneller, at his apartment, situated in a building featuring large full-length glass windows. The camera stays at a distance from the action as we see the various inhabitants of the apartment building going about their business (mainly women performing chores such as cleaning/housework or watching the ubiquitous television sets present in every room) from the perspective of the street, while pedestrians walk past. Various shots from different angles alternate between displaying Mr Hulot and Schneller's family and the other people in the building, but on the soundtrack we hear only the outside sounds of the city, such as the traffic and footsteps. It soon becomes clear that all of the inhabitants are watching the same programme on television. In one shot, we see the action inside four different apartments which appear like a grid of screens or security monitors, increasing the audience's awareness of themselves as spectators of the inhabitants,

who are in turn television spectators (AlSayyad 114). The notion of insulation and isolation resurfaces from earlier sequences in the lack of sound from the interior action and constant presence of the city outside: the television acts to absorb the inhabitants' attention, thus containing and isolating them as they are not aware of each other or of the outside world, which carries on undisturbed by the action. The scene thus demonstrates "the spectacularization and reification of life itself" (Marie 261). By making the inhabitants' actions visible but also containing them and cutting off the sound, Tati uses formal features to replicate the experience of television which, on the one hand, lets viewers glance "into others' private lives" but also prevents physical interaction with and knowledge of one another and the wider world (AlSayyad 114). In this way, the representation of space inside and outside the home in this sequence reflects television's paradoxical effects on the intersection of public and private life.

While the windows in the apartment sequence in *Playtime* resemble television screens shot from a predominantly static camera, *Reality*'s depiction of the activities of various inhabitants of a housing block uses not glass, but a moving camera that seems to penetrate through the walls. *Reality* finds a formal cinematic equivalent to remediate *Big Brother*'s "fusion of the distributive function of electronic media with the design principles of glass architecture" (McQuire 182). The camera is able to transcend the physical barriers of the set, implying an unusual relationship in which a mediated viewpoint is layered upon, and transcends the limitations of, the physical space of the film. If *Playtime* spatialized the experience of watching television, *Reality* invokes the ubiquitous digital surveillance of reality television with its promise of "a privileged viewpoint, transcending previously impermeable barriers" (Trottier 260). In the film, the camera's perspective is not constrained by the spatial relations of the film's physical space, but instead gives way to transmural mobility.

Matteo Garrone's camera probes private space in an extraordinary sequence depicting the family's return home from a wedding and preparation for bed. The television show *Big Brother* relies upon a format in which "subjects are enclosed in a fully monitored communal dwelling" (Trottier 260). In order to highlight the claustrophobic and controlled interior of the house from the outside world, the show occasionally features "a shot of the house from an outside vantage point" (Kilborn 80-81). This dichotomy between interior and exterior worlds manifests itself in the way that Garrone first represents the house's exterior, before taking us inside the rooms. The sequence begins with exterior shots of the family house focusing only on the action taking place in the publicly visible area of the stairs. The camera follows the family up the stairs from the side and cranes up under the staircase to show Luciano carrying his uncle on his back. The camera then tracks out as Luciano comes back having deposited his uncle and we see the other family members heading up. Finally, the camera cranes down again to show

Luciano wandering back down the steps. In this way the camera follows and is restricted by the outside spatial design of the stairs and loses characters when they move inside. This limitation in access is soon remedied, however, as Garrone cuts to the inside of the house, replicating the distinction between exterior and interior space in reality television formats. The camera tracks past a larger female family member as she undresses, along past the wall from the perspective of the front of the house to show another lady removing her fake eyelashes and around the room where two other women undress and then round to another wall. We then cut to large man eating watermelon on the other side of the wall, beginning another series of unrestricted camera movements through the house as the camera moves around to the door frame where you can see an elderly man in wheelchair removing his shirt. While the camera's viewpoint is restricted outside the house, it roams freely within the house as if the structure were a reality television set with an open or missing front wall. The apparent flimsiness of the walls and their inability to halt or impede the camera's gaze suggests that the physical walls between the characters' rooms are as artificial and easily removed as the set of *Big Brother*. The house is monitored from all vantage points and shot as if it is public and open space. The physical walls of the set are therefore transformed by the enhanced vision of the camera, which seems to represent the gaze of reality television and of all forms of surveillance more generally. The camera then moves past another wall to show Luciano's wife removing his makeup (white face paint) for him. The removal of costumes and/or makeup in the sequence implies an inside (or almost backstage) look into the family's lives beneath their public performance of themselves. This visual penetration of the boundaries of private space thus appeals to the characteristics of the reality television show in which "audience members are accorded full access to the subject, who is not equipped with a backstage to escape the public gaze" (Trottier 260). Garrone structures his representation of the Napolese home according to the principles of reality television. In this way, a mediated mode for conceiving of public and private space is layered upon and in fact subsumes the physical walls shown on screen.

Significantly, *Reality* highlights the construction involved in producing the illusion of transparent access promised by reality televison, and fantasised about by Luciano, in the final sequence when he eventually breaks into the *Big Brother* house/set. Having entered the studio, Luciano walks around the brightly-lit house set which is in the centre of the studio, past camera operators who can only just be seen in the dark filming the activities of the house occupants through glass panels that form the walls of the house. He wanders around the set from the outside observing the participants followed by a shaking, handheld moving camera. The housemates cannot see Luciano as he walks past the window-walls, watching them carry out nightly activities, including a group of female housemates brushing their teeth and applying cosmetic

products in bathrobes in a bathroom. In this scene, the housemates in the bathroom are looking into what must presumably be a two-way mirror as Luciano watches through the other side outside in silhouette. His tour around the set recalls the earlier scene analysed above in which the camera takes the audience through the home as the family ready themselves for sleep, but this time the glass box places a screen between the observer (Luciano) and those being observed, exposing the house as a constructed environment and emphasising the technical elements and apparatus that contribute to the illusion of transparent representation.

If this sequence shatters the illusion of seamless transparency, it also reveals Luciano's self-delusion that his ability to penetrate the set will bring him acceptance and attention. Upon finally entering the set itself, Luciano smiles at a security camera before settling down on a bright white recliner. Behind him the viewer can discern a pool party happening in the room next door through the transparent glass wall, but the other occupants do not notice Luciano, who remains the perpetual observer. Luciano does not find the inclusion and validation that he so desperately desires and is excluded from the Big Brother community, just as he feels that he does not command enough respect in his real-life family and community. In an extraordinary high angle overhead shot, we see Luciano lying contentedly on one of four recliners arranged around a table; the other three empty. The camera then cranes progressively upward into an extreme wide shot until the brightly-lit set with its open roof becomes only a spot within the darkness of the buildings and city surrounding it. On one level the shot emphasises how Luciano's attempts to gain media attention have in fact left him completely isolated, lost perhaps in his own deluded obsession, but more figuratively it implies that the set is nothing but a constructed island isolated within the real city that surrounds it. The darkness surrounding the set emphasises its separation from the surrounding environment, as well as its insignificance within this vast, sprawling place. While Luciano hoped to increase his public importance and visibility, he has in fact achieved the opposite, becoming a vague spot in the darkness.

Like *Holy Motors*, *Reality* depicts an intertwining of physical, concrete space with a mediated mode of experiencing space. While *Reality* represents a mediated vision of spatial relations layered upon physical structures, *The Bling Ring* foregrounds and remediates contemporary ubiquitous media technologies and platforms that visualise our spaces (Google Earth) and our lives (Facebook) to explore what happens when this layering becomes so complex that the boundaries between layers disappear. Like *Reality, The Bling Ring* emphasises the danger of becoming consumed with enhancing one's composite or mediated self.

Full-frame screens: *The Bling Ring* and Ubiquitous Media

The screen, whether a film screen, television or computer, shares a crucial characteristic with its antecedents, the picture and window frames (Friedberg *The Virtual Window* 5). Both frames imply "a separation" or "ontological cut" that divides "the material surface of the wall and the view contained within its aperture" (5). Importantly, the frame distinguishes "the materiality of spectatorial space from the virtual immateriality of spaces seen within its boundaries" (6). This separation was challenged, however, by virtual reality technologies, such as gaming, which are immersive, and thus occupy a space between materiality and simulation, "a second-order materiality, liminally immaterial" (11). In turn, as augmented reality threads and intertwines with simulation, "image-bearing glass skins" on buildings and the expansion of "virtual reality technologies… from the gaming world into entertainment and daily services" further problematize the notion of an ontological divide between screen and reality by transforming "the virtual window" into "a ubiquitous portal" (242). Indeed, platforms such as Facebook, where a user is able to check in virtually into a place that they are physically occupying and use wireless networks to instantly post a visual record of everything that happens to them make the distinction between online and real life almost impossible to define (Elwell 235).

In *The Bling Ring*, Sofia Coppola depicts an environment where virtual representations of physical spaces and the spaces themselves cannot be disentangled. The film focuses on the true story of a small group of bored Californian teenagers who begin locating celebrities' homes on Google Earth and finding out when they will be away or out at events, using celebrity gossip blogs. They then visit the houses, trying on clothes and jewellery, and stealing items. Not only is the Internet their source of information about the physical locations of the actual celebrities, but they also construct virtual images of themselves as a kind of celebrity by boasting about their conquests and taking and posting endless streams of 'selfies' on social media. One can conceive of stars and celebrities as human interfaces between mediated and lived space, given that, while public interest in these stars' private lives indicates an awareness of the separation between the star and their on-screen roles, audiences can only know celebrities through "their representations in mediated texts, however familiar to the audience they seem to be" (Evans 19). This celebrity practice of the "mediated persona" (Evans 17) is becoming increasingly central to self-representation, especially on social media. Marwick and boyd note that social media has transformed celebrity into a "performative practice" which is increasingly open to ordinary or non-famous users (140). Individuals are able to practice "micro-celebrity," which involves conceiving of one's audience as a "fan base" and constructing one's image "to be consumed by others" (140). In *The Bling Ring* the problematisation of the border between celebrity and ordinary individual becomes strongly linked to the conflation or overlap of online and physical

space. As with the motion capture landscape that prosthetically adorns the ordinary, crumbling space in *Holy Motors* and the perspective of reality television that turns Luciano's home life into spectacle in *Reality*, virtual modes of imaging both places and people become layers that embellish and enhance the ordinary material reality of the characters in *The Bling Ring*.

Coppola uses the space of the film frame to comment upon this complication between physical and online realms and associates a decreasing distinction between the screen within the screen and the film frame with an increasingly digitised subjectivity. Just as the teenagers attempt to replace their real mundane identities with personae as Internet celebrities, Facebook comes to take over the frame. In this way the relationship between the online and physical self becomes mirrored by the relationship between what I will term the mise-en-screen and the film frame.[8] Initially, the teens are often shown posting photos on Facebook and we see a shot of them using their devices (laptop, phone and so on) with the Facebook profile shown on a screen within the frame, thus the edge of the computer or phone screen is visible. Subtly, however, Coppola introduces shots of the teenagers' Facebook profiles, featuring photos that show their activities, which are not prefaced by a shot of the characters using a device and fill the entire cinematic frame. The images sometimes scroll down but we do not see the hands of the person scrolling, nor the device on which they are viewing them. In this way, Coppola's remediation of the popular social network implies that the Facebook lives of the protagonists become autonomous within the film because they are not contained within a secondary frame, but rather fill the screen. The Facebook images are no longer secondary to the frame of diegetic reality in the film and the window frame of the screen ceases to exist. This technique emphasises the dominance of the constructed images and social media performance in the teenagers' self-presentation and identity formation. While used sparingly in the film, the increasing absence of the edge of the screen foreshadows the increasing uptake of more immersive and transparent interfaces, including phone screens that have no visible edges.

In addition to Facebook, Coppola remediates the elaborate, interactive map provided by Google Earth in such a manner as to draw attention to the increasing ontological overlap between and layering over of virtual modes of imagining physical spaces and the spaces themselves. In this way she reflects upon what Jason Farman identifies as the ambiguous relationship between "digital mapping and its connection to an indexical, ontological reality" (869). Digital maps have become increasingly accessible with ever-advancing mobile technologies allowing users to call forth and/or generate maps from a multiplicity of locations (Gartner, Bennett and Morita 247). From one's phone, one can access an Internet search engine with the capacity "to generate

[8] This relationship is explored further in Chapter Four in relation to *Nerve* and *Unfriended*, in which the mise-en-screen partially or completely takes over the film frame.

maps in response to spatial queries and routes between specified origins and destinations" (247). We have thus now entered a state of "ubiquitous cartography" in which "maps can be created and used anywhere and at any time" (248). The wide availability of wireless Internet and the development of systems that allow a device to pinpoint a user's location, such as global positioning systems (GIS), has enabled the growth of "populist map-making" (247). The most popular and significant platform to utilise such technology has been Google Earth, which "compiles satellite imagery and aerial photographs into a 3D virtual globe" (Farman 872). Maps are generally considered to be "an objective visualization of a territory" (874). This presumption stems in part from our need to assume their accuracy in order to use them in our everyday lives (MacEachren cited in Farman 874). Additionally, Google Earth's employment of satellites and aerial photography appears to attribute authorship of the map to an objective machine, rather than the subjective vision of a cartographer (Farman 875). Nevertheless, however, GIS software cannot be considered inherently objective because "the reading of objective space is indeed a 'reading,' an interpretation that is never outside of the culture that produced such a reading" (876). Yet because users tend to regard digital maps as accurate, those digital maps come to define their ideas of physical space.

During the film, Coppola uses editing techniques to suggest that Los Angeles has become almost an embodiment of its own satellite image. Just as the mode of visualising public and private space comes to define the physical parameters of the house in *Reality*, here the mode for representing a city, in this case Google Earth's photography, becomes synonymous with the space itself. In one scene, the teenagers search for an aerial photograph of a celebrity house on Google Earth to find the location and entrances of the home and this satellite image is displayed to the audience. The following shot shows the actual house, static as in the satellite imagery, suggesting that the virtual image, not the actual place came first. This scene creates an uncanny effect as the satellite image from the map and the real house seem identical, thus blending the immaterial with the material, the denaturalised map image with the familiar, physical space. Tom Conley notes that typically maps in films generate self-reflexivity about cinematic representation precisely because "they are written in codes and signs that are not those of film; yet they are of a spatial scale not unlike that in which they are portrayed" (4). Just as the map constitutes a smaller representation of the film's world using foreign signs, the film constitutes a smaller representation of reality using other signs (4). In this case, however, the map is almost exactly the same as the image it portrays and uses the same signs. This aspect of remediation thus implies a convergence between real, concrete space and the immaterial. Jean Baudrillard famously stated in his treatise on postmodern simulation, "the territory no longer precedes the map… it is nevertheless the map that precedes the territory" (1). Google Earth literalises this

pronouncement with its transformation of the planet into "a new territory: the digital empire" (Farman 876). In the film, Google Earth makes the previously unattainable dream houses of celebrities visible and accessible to the ordinary teenagers: as the sequence of shots suggests, the house is made real precisely by a digital satellite image. Material space can only be grasped once it exists as an immaterial image.

As in *Reality*, the attempt to merge physical reality with screen image is presented in the film as a destructive impulse. The characters utilise the Internet to incorporate the fantasy world of their idols into their own spatial reality, just as they base their own mediated images on those of celebrities. At the end of the film, they are caught precisely because they openly reveal their crimes to their friends and on their social media profiles. The image that they project on social media eventually causes negative consequences in their real lives. The film thus suggests that technologies which purport to offer fully customisable and malleable self-representations in fact may hide threats to the integrity of the self if not utilised with care and caution. In creating an alternative other, the teenage protagonists produce a multiplicity that cannot be sustained within their everyday reality in part because these other selves are derived from celebrity culture rather than representing facets of their own personalities. The need to maintain an integrity of the self within composite space forms a recurring theme in this thesis. Despite the implication that the shift from virtual to augmented reality models provides us with more control over our composite digital/material environments because we do not have to lose our bodies or surrender our subjective bearings, the merging of digital and proprioceptive subjectivity nevertheless may compromise, rather than reinforce, the unity of the digital/material self.

Conclusion: Augmented Cities, Augmented People

This chapter has explored the way in which media, which can themselves be considered a means of mapping, articulating and imagining spaces, become materialised at ground level in cinematic mediascapes. All of the films analysed at length in this chapter refashion major physical cities by refracting them through a mode of spatial representation that merges with the physical space represented. In this way, each of the films discussed layers technologically mediated perspectives onto or within on-screen concrete spaces derived from well-known cities to the point that mediation becomes inextricably intertwined with material space. This merging produces a vision of Berlin as a template for subjective navigation in *Run Lola Run*; images of Paris as a material city overlaid with cinematic space in *Holy Motors*; Naples as viewed through the physical boundary-crossing and pervasive surveillance lens of reality television in *Reality*; and; finally, the conflation of the online, imaginary and physical spaces of Los Angeles in *The Bling Ring*. While these digital/material hybrid cities express fantasies of control and mastery, whether in the form of the ability to navigate often empty streets in *Run Lola Run* or having

visual access to the entire city in *The Bling Ring*, they also demonstrate the limitations of agency in these composite spaces. In *Holy Motors*, the mediated city becomes the site of an endless, wearying compulsory performance, while both *Reality* and *The Bling Ring* demonstrate the illusory appeal of voluntarily mediated performances in which the conflation of one's embodied and mediated selves results in isolation and decreased social power.

Unlike the virtual cities of their immediate predecessors, which maintain a separation between simulated and material reality as parallel spaces, the films analysed in this chapter represent concrete, physical spaces that combine with mediated modes of imagining or perceiving space and spatial relations. These films do not use the iconography or core tropes of dystopian science fiction, but instead borrow the "syntactic" (Altman 10) relationship between space and technology familiar from science fiction films that depict urban environments as defined and structured by technological progress. The spatial dynamics of these films parallel the nuanced contemporary context of ubiquitous media producing composite mediatised/material spaces. In each case, characters must navigate layered spaces which are shown to be both potentially empowering and threatening. In Chapter Two, this layering of space and corresponding negotiated subjectivity will be explored in relation to music and sound.

2. Rocking Your World(s): Popular Music and Fragmented Perception

In the previous chapter, I argued that examples of contemporary cinema layer modes of representing or perceiving space over physical on-screen spaces to remediate not only the various forms of media alluded to, but also their relationship to the material world. In this chapter, I explore examples of contemporary film, such as *Sucker Punch* (Zack Snyder, 2011) and *Spring Breakers* (Harmony Korine, 2012), that parallel the relationship between digital subjectivity and material bodily experience engendered by such mobile listening and/or viewing technologies as the mobile phone, MP3 player and iPod. Following Aylish Wood's approach, which aims "not to talk about representations of technology but articulations of technology" in which the viewer encounters "the spatio-temporal transformations that technologies enable" (*Digital Encounters* 7), this chapter argues that *Sucker Punch* and *Spring Breakers* remediate not the media object of the iPod or the smart phone so much as their relationship as interfaces to fluid ontological states and fragmented or distributed forms of perception.

In order to make this argument, it is necessary first to define and theorise the notion of interface as utilised in this chapter. An interface can be broadly defined as "the communication or boundary or point of interaction between two other parts or systems, while it becomes part of that system, influencing how parties interplay with each other" (Jeong 3). However, the notion of the interface has been expanded beyond this technical definition to include "mobile interfaces," such as the book and the walkman (Silva and Frith cited in Jeong 4). The concept of "mobile interface theory" examines "the "sensory-inscribed" body that engages across material and digital landscapes" (Farman cited in Jeong 4). According to this definition, an interface can be any threshold that mediates between the body's position in the material and digital world. The iPod is a prime example of this kind of interface, as it mediates between the physical and the aurally-inscribed virtual. To conceptualise how such an interface may be remediated in cinema or other media, it is worth briefly returning to Alexander Galloway's important intervention in interface theory. Galloway theorises interfaces as "not simply objects or boundary points," but rather "mysterious zones of interaction that mediate between different realities" (vii). There is thus a distinction between media as objects, and "modes of mediation," which refers to the processes enacted upon the world by media "as middles or interfaces" (13-16). Remediation as conceptualised by Galloway refers thus not to the borrowing or integration of an object per se, but to the integration of a mode in another medium (20). It is this conceptualisation of remediation that anchors my analysis of what I term 'post-walkman cinema.'

In the films analysed in the following sections, characters are never or rarely shown using iPods or mobile phones, but the films engage with the ontological condition engendered by these media because they depict the reproduction of music/sound (either through mimetic performance or recorded playback) as interfaces between privatised, customised aural worlds and mundane reality. In this sense, these films replicate how contemporary subjects distribute perception between multiple audio-visual channels in order to negotiate, and subjectively take control of, spaces and environments that they may find threatening or unpleasant. The Sony Walkman was the first music-listening technology to offer the possibility and normalise the practice of inhabiting both physical spaces and a "very different, imaginary space or soundscape in your head" (du Gay et al, 17). This tension between public and private listening spaces has been intensified by post-Walkman technologies with high storage capacities, which have eliminated the need to carry around pre-chosen tapes/discs, thus offering more music choices to fulfil the listener's requirements in the moment of playback and allowing for a more constant stream of aural accompaniment.[9] Both the MP3 player and the mobile phone are examples of mobile, personal and privatised devices that allow us to open up (largely aural) mental spaces within real world spaces. They thus allow us to inhabit an aural space that exists independently from other sensory perceptions and partially dislocate ourselves from our surroundings in the physical world, despite maintaining a material presence in, and partial engagement with, the physical. With the MP3 player, the user is able to negotiate "various levels of presence with their MP3s" and "choose the *degree* of attendance and presence they grant to the places they navigate" (Simun 931). Michael Bull theorises that we augment our daily lives with recorded musical sourced from personal listening devices, such as the iPod or MP3-capable phone, to open up personalised layers of auditory space while moving through urban spaces (4). Similarly, Miriam Simun found in her study of Londoners who use MP3 players on their daily commute that MP3 technologies "enable individuals to use music to precisely shape their experiences of space, place, others and themselves" (921). The MP3 player enables the user to remove themselves from the world around them and inhabit other aurally constructed subjectivities, as well as turning their surroundings "into private and pleasurable spaces" (921). The mobile phone allows a similar form of escape and co-presence. As Ingrid Richardson comments, the mobile phone is considered to be "almost…a body-part or appendage" as it is almost constantly on our person (72). Yet even as the phone becomes an embodied component of our physical presence, it paradoxically also allows us to engage with others who are not physically present with us and with the virtual world through online, video and game content, creating "pocket microworlds"

[9] For these reasons, I have chosen the term 'post-walkman' to refer to the cinematic tendencies examined in this chapter.

(73). The mobile phone can thus be considered "an aural, visual and haptic interface" (75). In this way, mobile devices, including the phone and the MP3 player, "are effectively transforming the relation between body and world…and actual and virtual environments" (66).

This perceptual distribution within hybrid environments contributes to what Anahid Kassabian has dubbed the "distributed subjectivity" that "takes place across a network of music media" (*Ubiquitous Listening* xi). Kassabian suggests that our sense of self and our place in the world appears to us as individual but is "constructed in and through our responses to acts of culture–speech,music, television, and the like" (xxiv). Music has an especially strong part to play in contributing to this subjectivity because "ubiquitous musics" often act as "the channels of distribution" (xxiv). Kassabian draws a strong parallel between music listened to in the background, as one would on an iPod or smartphone, for example, and "a new form of subjectivity" (8). These forms of listening spatialise individual subjectivity because they are "ways of managing one's audio environment," but they also contribute to the construction of this subjectivity because "they both interact with and create your environment" (17). In this way, ubiquitous music both personalises and diversifies subjective spaces. The notion of digital and proprioceptive factors as interrelated determinants of subjectivity implies a significant departure from Scott Bukatman's earlier conception of "terminal identity" in which individual embodied subjectivity is replaced entirely by mediated subjectivity channelled through the computer and/or television screen (9). Kassabian's conceptualisation of subjectivity retains the influence of media, but rejects the emphasis on disembodiment that is central to earlier understandings of cyberspace. She thus suggests that there is a greater negotiation or dialogue between "humans, institutions, machines" producing a subjectivity in "which power is distributed unevenly and unpredictably" (xxv). This negotiation of power is explored in the films analysed in this chapter.

Utilising Seung-Hoon Jeong's conception of cinema as populated by images of, or metaphors for, interfaces (13), this chapter will analyse the way in which examples of contemporary cinema remediate the contemporary perceptive and subjective distribution implied by the iPod and the mobile phone by using the performance and/or playback of sound and music as interfaces that partially dislocate characters and allow them to be present in different ontological and phenomenological levels simultaneously. In *Sucker Punch,* the characters use recorded music and dance to be physically transported to an alternative game-like world, whilst also maintaining a physical presence in a mental asylum. Similarly, in *Spring Breakers,* music often has a transformative effect on its listeners and their environments, altering the ontological properties of their surrounding on-screen space. Furthermore, the aural elements of the soundtrack often contradict or provide contrapuntal commentary on the visual aspects, suggesting two simultaneous and parallel mental spaces: one experienced visually and one

aurally. In particular, the ghostly, frequently disembodied, voices of the girls form an exterior layer that sometimes conflicts with and sometimes heightens the images shown. This layering effect replicates the way in which various aural sources, whether it be a voice on a cellphone or a song on one's iPod, are constantly layered over and interface with our material surroundings and phenomenological experience of spaces. Although the films could be read as merely depicting psychological states, specific instances of music or vocal performance or playback seem to instigate this psychological transformation, thus mirroring the way in which the music or sound issuing from an iPod or mobile phone allows our brains to travel to different places as well as the distributed attention required when we use multi-channel devices with multiple playback capabilities.

The films explore how music and sound can create the illusion of increased agency in composite spaces by enabling perceptive and subjective negotiation of space, but simultaneously show how this distribution of subjectivity may facilitate bodily exploitation. In *Sucker Punch*, Babydoll (Emily Browning) dances to various recordings of popular songs, but rather than seeing her dance as we would in a typical musical we instead see a subjective scenario in which she–and the other girls that she lives with in the gothic asylum that her unfeeling step-father has placed her in–are transformed into action heroes. The film offers the playing of music as both a liberatory tool and an interface that transforms one's spatial constraints and allows one to cohabit multiple spaces, much as "iPod users are transported from one cognitive and physical space to another through the dominant organising potential of privatised sound" (Bull 39). The film is ambiguous, however, about the real effects or ultimate significance of this mental displacement. In *Spring Breakers* performance of music similarly invokes both a fantasy layer and an ontological transformation. In the film, a group of bored college students undertake a hedonistic odyssey into sex and violence, pretending, as their voice-overs insistently tell us, to be in a movie or video game. They become attached to an unlikeable rapper and small-time drug lord named Alien (James Franco).Throughout the film the girls act out and sing a number of pop hits from the nineties complete with the original dance routines, thus directly reproducing them. In one particularly memorable instance, this diegetic performance slips into a non-diegetic original recording of the song accompanied by a sequence of the girls living out their fantasies. Musical performances thus act both as a form of playback and as an interface that mediates between mundane reality and a music-suffused fantasy land that the girls have constructed for themselves. Although this fantasy is largely psychological, it is constructed from the mediated resources of late 1990s and early 2000s popular music and instigated by the performance of this aforementioned popular music. In this way musical artefacts become elements of distributed subjectivity. Just as their performance seems to generate an additional layer of sound in the form

of non-diegetic music, it simultaneously generates the personae that they graft onto themselves and act out during their adventures into sex and violence. Although these personae represent subjective fantasies that allow the characters to take pleasure in their experiences, their illusion of subjective control contrasts with both the objectifying popular culture imagery that they emulate and their passive subservience to Alien for the majority of the film. The final section of this chapter therefore relates the discussion of partial dislocation and distributed subjectivity to gendered experience. The women depicted are able to use music to dislocate themselves from - and thus exert a degree of mental control over - their male-dominated environments. Paradoxically they are also able to inhabit male aural subjectivities, thus associating a composite gendered space with composite audio-visual spaces. In this way, distributed subjectivity is presented as an essential skill and modern coping mechanism, yet it is revealed to offer limited protection to physical female bodies.

The chapter will begin by exploring the generic lineage of these contemporary films and their relationship both to the traditional musical and to modern listening technologies. It will then begin to conceptualise what a post-walkman cinema might look like. First, I examine an earlier film that represents the experience of listening to a personal listening device more directly. *Morvern Callar* (Lynne Ramsey, 2009) depicts the film's titular character moving through the film world listening to a mix-tape to emphasize her disconnection from objective reality. This film will provide context for the more stylistically heightened and less literal examples discussed at length in the chapter and introduce how a musically distributed subjectivity can be represented through the audio-visual language of cinema. The chapter will then expand upon the notion of the "quasi-interface" (Jeong 14) in cinema and its relationship to the films discussed. It suggests that both *Sucker Punch* and *Spring Breakers* utilise the playback or performance of popular music as an interface between ontological levels in a similar fashion to the way that phones and MP3 players act as interfaces between material and mediated presence. The chapter will address the relationship between fantasy and subjective navigation of hostile spaces in each film before claiming that this subjective navigation may be read as a form of imperfect, yet nevertheless significant, transgression of traditional gendered space.

Interfacing Between Genres: Post-Walkman Cinema and the Musical

If science fiction offers the possibility of alternate worlds accessed via technology, whether in the form of the more traditional space ship traveling to other planets or through a wire that connects one into a pod attached to a computerised reality, the musical similarly suggests an escape into "the realm of fantasy" using the singing and dancing body to call forth "musical numbers issuing from the magic world of the musical" (Gorbman 162). Musical sequences do not have to conform to the laws of physics, gravity or logic, nor do they have to be narratively

or stylistically consistent with the rest of the film. The examples of post-walkman cinema discussed in this chapter build upon, but also depart from, this tradition in their focus on the playback and/or performative reproduction of existing popular music.

Music has long been associated with heightened elements of fantasy. Gene Willet argues that "the connection of music and fantasy is nothing new to film" both in musicals and nonmusicals (89). Willet analyses the films of David Lynch to suggest that he "uses music to generate visions representing fantasies in the more specific, psychoanalytical sense" where the fantasy works "to construct our 'sense of reality'" (89). This chapter explores films that similarly use popular music to engage with the relationship between fantasy and reality, but reads them less from a psychoanalytical than a technological perspective, as the fantasy layer here is directly enabled or drawn from the music as a transformative agent that is either implicitly or explicitly mediated by technologies of playback. In the works of Lynch, the elements of fantasy appear to issue from the mind, or a dreamworld, and are expressed through popular music. This process is inverted in the films discussed in this chapter, where popular music appears to instigate and shape the fantasy. Although the fantasy retains an element of the psychological, the playback or performance of popular music is depicted as the source of the fantastical transformation or augmentation. Furthermore, performance and playback increasingly collapse into one interface as in *Sucker Punch* when Baby Doll dances to a recording, while in *Spring Breakers* the characters almost mechanically reproduce existing mediated performances of pop songs.

Contemporary examples of post-walkman cinema, such as *Sucker Punch* and *Spring Breakers,* thus combine the theme of technological mediation of reality most commonly explored within the science fiction genre with the structure of the musical where recorded music – and sometimes music performance – helps to integrate elements of fantasy. They do not operate exactly as musicals do, however. In the traditional musical, one frequently finds the stage or film set as an ontological frame that both enables the transition into and brackets the fantasy. Even if the fantasy is not on a stage, the elements of fantasy are generally delimited by their expression in song and dance. These sequences may possess a different aesthetic, but they are still tied to and contained by the element of dance. Popular music rarely opens a second ontological plane that extends beyond the song and dance as it does in post-walkman cinema. There is also little sense of the kind of partial dislocation described in this chapter. Usually in a traditional musical the characters remain in the same space, although the rules and principles that organise that space are altered. In the films described in this chapter, on the other hand, popular music and/or sound call forth a second layer of reality with different ontological properties that is instigated by musical elements, including dance, but is not limited to expression through dance sequences. This instigating musical element is linked to some form of

mediated, whether explicit or implicit, playback. These films thus form a generic hybrid where popular existing music functions as an interface within the diegesis that calls forth a second ontological layer.

Of course, popular songs have been employed before by 'jukebox' musicals, especially in the work of postmodern auteur Baz Luhrmann, whose *Moulin Rouge!* (2001) featured on-screen musical performances of repurposed songs in radically different contexts. His adaptation of *The Great Gatsby* (2013) pushes this aesthetic even further. In the film, the extravagant parties hosted by Gatsby are accompanied by modern electronic pop music. In this way, Luhrmann links the hedonistic roaring twenties to its modern equivalent in rave culture. The music at the parties is attributed to an eccentric organist and group of violinists as an on-screen source, yet the music on the soundtrack also appears non-diegetically in full recorded versions. The musical track seems to match or even fuel the mayhem on screen as, for example, guests jump into the pool in time to pop star Fergie's "A Little Party Never Killed Nobody (All We Got.)" The music has a strong correlation with the visuals, with climaxes in the music matching high angle shots of ribbons and confetti falling. The music here heightens or augments the already stylised environment, imposing an anachronistic aural element of contemporary music on the 1920s environment and transforming it into a rave party. The film falls outside of the focus of this chapter, however, because the music functions to heighten an already stylised world, but does not instigate a dislocation or transformation. The examples of post-walkman cinema discussed differ from these postmodern collages because the performance or playback of popular songs generates a technologically-shaped layer of perception. In these films one finds an increased focus on music playback, whether in the form of performance or through a device, as an interface between media-enhanced perceptual and subjective realities.

The parallel between listening platforms and contexts on the one hand and audio-visual aesthetics on the other reflects Julie Hubbert's assertion that within the area of film music "compilation practice… changed and adapted in direct response to innovations in recorded sound and music" (294). For example, she analyses the relationship between the emergence and evolution of music video and the use of popular music in films "typically isolated within montage sequences" that were sometimes "abstract and…only tangentially related to the narrative content of the film" and accompanied by "a distinctly faster editing pace" (303). She later links the employment of a large, diverse and eclectic range of songs by contemporary directors such as Sofia Coppola and Paul Thomas Anderson to digital music's provision of increased opportunities for users to compile their own collections of songs (311-312). Both *Sucker Punch* and *Spring Breakers* extend this concept, not only reflecting listening practices in their compilation scores, but incorporating the ontological condition engendered by

contemporary media, both musical and otherwise, into their structures and film worlds. The sense of characters' perceptions being dislocated, augmented or transported by music and sound distinguishes this phenomenon from the now routine use of music video aesthetics. Although neither film directly depicts an iPod, smart phone or MP3 player, they represent the emergence of a post-walkman cinema and form part of the wider tendency examined in this thesis by layering mediated modes of perception over and within film worlds .

Searching For A Post-Walkman Cinema in *Morvern Callar*

As previously noted, the changes in listening practices associated with digital music and personal mobile listening devices possessing massive storage capabilities can be traced in film composition trends, such as the increasing use of fragments of a wide range of different types of music (Hubbert 311-312). Despite this development, relatively few films have attempted to represent the listening experience of using personalised devices which act to synthesise varied aural and visual experience. As Bull argues, the iPod does not just provide personalised sound but in fact transforms what users see in the city because the imposition of a new soundtrack adds new meanings to their surroundings (40-44). The iPod allows users' private aural worlds to flow into and recontextualise the visual elements around them (40-44). One film in particular has made a greater effort than most to represent this transformative effect. *Morvern Callar* tells the story of a young woman, played by Samantha Morton, who returns home to find that her boyfriend has committed suicide, leaving behind a mix-tape of songs. Morvern proceeds to dispose of the body and continues going about her daily activities. She submits a novel that her dead boyfriend had written to a publisher and uses the proceeds to take a trip to Spain. During the film, she displays few emotions regarding her partner's death, but she—and the audience via the soundtrack—listens to his mix-tape constantly on her Walkman, adding additional resonance to Morvern's activities. Sarah Artt argues that Ramsay depicts Morvern as a silent character who speaks infrequently, but she allows the audience to be "inside" Morvern's silence through the use of music. Although Morvern is using the outdated technology of a Walkman, the film nevertheless points to a form of aural subjectivity that has become ubiquitous with the popularity of the iPod.

In *Morvern Callar*, the music that Morvern listens to works to represent her interiority (Artt). In fact, Morvern actively uses sound to create "a kind of isolating sphere for her, blotting out other sounds or surroundings" (Artt). As with the later more radical or stylistically heightened films discussed in this chapter, there is a sense that Morvern partially dislocates herself from the physical world. Like MP3 users in London, she chooses how much to engage with the world around her and how much to engage with her aural soundscape (Simun 931). As John Caughie notes, the film is an adaptation of a novel written in the first person, but rather

than including a voice-over that would provide a cinematic equivalent to this technique, Ramsay instead utilises the device of the Walkman to traverse diegetic and non-diegetic sound, moving "from inside Morvern to outside, from Morvern as a subject listening to Morvern as object of the image" (108). In the film's stunning final sequence, for example, Morvern is at a dance club featuring flashing strobe lights and we see her face on screen from various angles in the intense light interspersed with blackness as the lights flash off and on. As the others around her dance, Morvern stares straight ahead and on the soundtrack we hear what she is listening to, which is the Mamas and the Papas' "This is Dedicated To The One I Love." The tenderness and mournfulness of the song contrasts with the hedonistic atmosphere of the club and the blankness of Morton's expressionless face, suggesting hidden emotion beneath the surface. As the scene comes to a close, the screen goes black and we suddenly hear the music as Morvern would hear it through the tinny sound of the Walkman and accompanied by the static of a tape playing. We now hear what Morvern hears and see what Morvern sees: blank space. The audience has thus moved from a position in which Morvern is the aural subject and visual object of the image to a complete composite audio-visual subjectivity where we see and hear the space as Morvern does. Morvern is so lost in the music that she is completely unaware of what is around her. The final sound in the film is the click noise made by the stop button on Morvern's Walkman, which provides a neat bookend to the film's aural landscape as the first sound heard in the film is another clicking button, that of the keyboard of Morvern's dead boyfriend's computer (Artt). This use of bookending emphasises that sound in the film is not merely a soundtrack but rather is "motivated by touch… it is Morvern's actions that frequently activate and deactivate sound, whether it is musical or technological" (Artt). Bull argues that how we present ourselves to strangers publicly is most often based upon our surface-level visual appearance, while personal listening devices allow for a private interior level that is not visible to others (41). *Morvern Callar* highlights this discrepancy between the public "silent" self and private aural subjectivity through the relationship between visuals and audio in the film (Artt).

If Morvern's interiority at times conflicts with her surroundings, it can also act to amplify or enhance them, reflecting the way that music serves an "aesthetic impulse… triggered by the desire to heighten [our] experience" (Bull 41). In one scene, Morvern visits a supermarket while listening to the silky, warm tones of "Some Velvet Morning" recorded by Lee Hazelwood and Nancy Sinatra. The camera appears to glide along the aisles, past departments such as the butchery, as if floating with the music. We then see Morvern's face, characteristically blank, from a low angle as she walks around the supermarket when the vocals come in. Behind her, in the fluorescent artificial light hanging cardboard cut-outs of fruit and vegetables can be seen. The angle then changes to Morvern's point-of-view looking up at these apparently floating

bunches of produce as Hazelwood's deep voice refers to being given life by the Greek mythological character, Phaedra. The odd lyrics, haunted otherworldly vocals and all-enveloping sound lend a certain surrealism to Morvern's experience of the supermarket, which becomes both aurally and visually strange. In this sense, Morvern's aural experience heightens visual and kinetic experience of the supermarket, whilst also transforming the supermarket into an 'othered' space for the viewer, who is made conscious of the technological intervention of the Walkman in constructing this space.

Morvern Callar operates mainly at the level of examining the layering of subjectivity over exteriority. Both *Sucker Punch* and *Spring Breakers* develop and extend this idea, but utilise radical aesthetic strategies that destabilise the very ontology of their film worlds through the use of popular music as an interface between technologically mediated layers of perceptual reality.

Music Playback/Performance as Perceptual Interface

In order to read the films in this way, one must first accept that sound, and particularly music, can act as an interface within the film's world. Seung-Hoon Jeong proposes a shift in analysis away from the mechanisms of cinema itself as interfaces and towards depictions of "these very interfaces…seen on the film screen" (13). Jeong goes on to suggest that films possess the ability to "create indirect 'interface effects' out of various surfaces…instead of directly showing actual interfaces" (13) These objects constitute "quasi-interfaces" (14). For example, Jeong analyses the use of the face, body and surface of objects as on-screen interfaces. In this light we can apply his theory to aural elements and conceptualise the playing of music and other sounds, either through recorded technology or performance using bodies and/or instruments, as an interface that stands in for technologies such as the iPod or smart phone. As the following two sections will demonstrate, the record player that Dr Gorski plays for Baby Doll to dance to is an interface between the space of the asylum/theatre and a fictional video-game world in *Sucker Punch*, while in *Spring Breakers* the piano, digital sound technologies and voice of rapper Alien and the girls' mimetic replication of pop music are mediated human interfaces between mundane reality and a heightened level of perception.

Aylish Wood argues that "sound and image relations" can be utilised to "mediate between…coherent action and also potentially destabilized spatio-temporalities" ("Sonic Times in *Inception* and *Watchmen."*) She analyses the film *Inception,* which features a complex narrative in which the characters must navigate dream levels in order to artificially plant an idea in a man's head without him realising, as well as negotiating the depths of their own psyches. Wood suggests that sound bridges, especially involving music, act to "depict both the

connections between and also the instabilities in the dream levels" (np). She posits that films with unusual sound-image relations "reveal the precarious balance of experiences that involve technological mediations." The following sections explore the way in which the ontological instability engendered by the use of aural interfaces between reality and fantasy in *Sucker Punch* and *Spring Breakers* mirrors the notion of an aurally augmented reality and thus similarly draws attention to technologically negotiated experience.

Away With the Music: Music and Escapism in *Sucker Punch*

Both the iPod and the mobile phone allow users to simultaneously inhabit one aural space and another physical space. *Sucker Punch* explores a similar spatio-temporal dynamic by emphasising recorded music as an interface between layers of perception and mental spaces. The structure of *Sucker Punch* revolves around the relationship between "five layers, two possible realities and another three possible dreamscapes, all contradicting one another" (Vernallis 7-8). The film follows the journey of Baby Doll, who is committed by her abusive step-father to a mental asylum, which resembles a gothic mansion. Once inside the asylum, it morphs into a hybrid of a theatre and brothel, in which Baby Doll is dressed in sexually suggestive Burlesque-like outfits and forced to perform on-stage along with a group of other involuntarily committed young women and girls. The staff at the asylum become managers and dance tutors at the theatre. In addition to this ambiguous relationship between theatrical performance and life, Baby Doll soon realises that when compelled to dance to recorded music she unlocks another level, similar to a video-game but set to the music that is playing, where she and the other girls must complete various tasks and battle fictional adversaries in order to find five items that help them escape. Each of these game worlds seems to have its own rules and colour scheme and is aligned with the music playing, existing as a contained fictional setting within the already fantastical theatre/mental asylum. Carol Vernallis describes the film as a generic hybrid distinguished by "post-classical tendencies turned musical" featuring "a music-video audiovisual passage in an over-stylized setting, where sound effects both suture and make strange the image and the soundtrack" (8). Recorded music thus introduces fantasy layers and incorporates them into the film's fabric, while also establishing a complex relationship between Baby Doll's mental presence and her physical bodily presence.

The use of dance in a theatrical setting that appears to open up a fantasy layer appears to allude to the musical. However, the film focuses to an unusual degree on the technologies of playback that enable this transformation and, instead of showing us the actual dance that baby Doll performs as a musical would, we are instead taken into an entirely different space controlled subjectively by Baby Doll, emphasizing partial presence and distributed subjectivity. In fact, after Baby Doll's first dance, her fellow inmate and the unspoken leader of the group, Sweet

Pea (Abbie Cornish) challenges Baby Doll about her acquiescence to the demands for highly sexualised dance moves, yet this exchange disorients the audience because the audience never witnessed these submissive moves that Baby Doll publicly displayed; instead we saw an alternate, presumably subjective sequence, apparently called forth by the record of Bjork's "Army of Me" that Baby Doll dances to. Her public visual performance thus contradicts what she is hearing, which constitutes an entirely separate aural space, mirroring the way in which mobile technologies act to problematise the relationship between bodily presence in physical surroundings and virtual experience (Richardson 66). Nick Jones identifies *Sucker Punch* as a prime example of action cinema's utilisation of sequences set in "paraspaces" in which "separate, illusory realms of spatial possibility" provide spaces to enact a "displaced fantasy of empowerment" (95). While Jones reads the paraspace as a crucial element of the fantasy of spatial mastery expressed by action cinema more generally (97-98), he does not address the importance of the sound interface in the creation of paraspaces in *Sucker Punch*.

In the sequence set to "Army of Me," Snyder fetishizes playback technologies through his obsessive visual concentration on these interfaces. Baby Doll's doctor, Vera Gorski (Carla Gugino), who also acts as her dance tutor in the theatrical setting, initially puts on the record and a despondent Baby Doll refuses to dance. She whispers to Baby Doll that "if you do not dance, you have no purpose…your fight for survival starts right now…you have all the weapons you need, now fight." She stamps her cane and orders the music to begin again. Dr Gorski sets the record and the music begins, with its pounding bass drenched in reverberation and spiky synths and Dr Gorski begins to stamp along with the beat, while the others watch Baby Doll expectantly. As Bjork sings, "Stand up…" we see Baby Doll's face in extreme close-up. Snyder then introduces a rapid cut to the wheels of a tape machine turning, then back to Baby Doll's face and then again to the machinery of a voltage meter as it goes into overdrive, suggesting an intensity of sound and a corresponding intensity of emotion. This movement (of the tape wheels and the jittering meter) is then matched by a zoom in to Baby Doll's eye, implying that the activity of the musical playback device creates similar mental activity. In this way the sequence links music playback technologies to Baby Doll's subjectivity. A snowdrop falls on Baby Doll's eye, heralding the intrusion of the alternate layer suggested by the music and visually representing the ontological ambiguity that the film promotes around the boundaries between layers of perceptual reality. As the droplet falls, Baby Doll opens her eye and the camera tracks out again from her eye again and moves around her to show her in a snowy landscape. The fluidity and seamlessness of the camera movement emphasises the ease with which the music is able to transport Baby Doll. The colour scheme of the snowy world also suggests a seamless transition as the blues and white hues appear an exaggerated version of the aqua blue walls of

the dance studio. The musical interface therefore both removes or dislocates Baby Doll from her situation and also generates overlaps between spaces and realities, emphasising a similar paradox to that engendered by mobile personal technologies, which are both embedded within our physical and bodily presence and a means of transcending this presence (Richardson 74-75).

In this sequence and in the film more generally, recorded music is represented as a tool of liberation. In an earlier scene, Dr Gorski tells Baby Doll that when she dances, "you control this." Yet, Jones argues that while "the film preaches a message of spatial liberation" (101), it in fact disempowers its female characters by implying "that actual physical limitations cannot be overcome in the real world and so must be displaced to another realm" (105). This perceptual rather than physical empowerment mirrors Bull's assessment of the iPod when he argues that music has little impact upon the actual physical surroundings of the user, but rather represents an illusory utopia (49). Those who use personal listening devices "prefer to live in this technological space whereby experience is brought under control – aesthetically managed and embodied – whilst the contingent nature of urban space and the 'other' is denied" (49). Indeed, MP3 player users in London reported that the pleasure of using an MP3 player was the feeling of "great control" (Simun 921). The mobile phone, too, allows users to compress and contain their entire worlds in a single device by controlling the data about their lives on this device (Richardson 74). In the sequence, Baby Doll subjectively generates a world over which she can take mastery. This mastery is linked strongly to the song playing. Her defiance is alluded to by the lyrics of the song, which refers to "an army of me." Although Baby Doll does not have an army in the snow world, she does become weaponised against her adversaries. The music builds as Baby Doll goes up some stairs into a Japanese monastery-like building. The music dies down while she has an exchange with an old man, listed in the credits only as "Wise man" (Scott Glenn), who helps guide the girls through their tasks. She tells him that she is searching for freedom and he provides her with guns, referring back to Dr Gorski's statement that she has everything she requires. As she is handed the weapons, we hear another snatch of the opening of "Army of Me," again linking music to the "weapons" that Gorski tells her she already possesses. Upon leaving the wise man, Baby Doll has to fight a metal-plated robotic warrior and this fight is played out against a backdrop of non-diegetic heavy rock music, followed by a traditional orchestral score. After Baby Doll finally defeats the warrior by shooting him in the eye with her gun and steps off the fallen warrior, "Army of Me" begins playing again as she walks away from the crumbling building. Now in control, she kneels down and is able to power herself up into flight, avoiding her second adversary. In this way, the sequence emphasizes the different spatial properties of the game world and Baby Doll's enhanced capabilities as a result of the psychological weapons she possesses, but suggests that these psychological strengths are

only transmuted into physical abilities within the musically augmented game world. As she lands and then rises again, she is back in the dance studio, using movement to signify ontological fluidity. The music both represents and enables Baby Doll's control of the landscape and of her fate. The film, however, remains ambiguous throughout as to whether Baby Doll's fantasy victories in fact translate into physical freedom as she is returned to the world of the asylum. Indeed, Jones notes that the lack of historical and temporal specificity of the paraspaces that the young women fight in, which feature a collage of fantasy elements including samurai and zombies, simply reinforce their inability "to master any given environment" and instead reduce their efforts towards narrative progression to mere visual spectacle (102-104). Thus, the film's use of recorded music mirrors the "utopian impulse to transform the world" of the iPod (Bull 49), but simultaneously reinforces the limitations of this impulse. In this sense then the film's paraspaces can be read less as narrative elements than articulations of the use of distributed perception as a coping mechanism.

While *Sucker Punch* engages with the ontological instability promoted by recorded music as interface and the fragmented or distributed subjectivity generated by composite material/mediated spaces, it still depicts the fantasy world enabled by the music as largely contained within specific sequences. It thus does comparatively little work to depict the layering of various aural realities upon and within a single film world. *Spring Breakers*, by contrast, constructs an even more complex audio-visual relationship that plays with diegetic and non-diegetic sound in order to explore an aurally augmented and ontologically fluid landscape, where Florida is transformed into a musical fantasy. Thus, while *Sucker Punch* replicates the sense of subjective dislocation implied by mobile media, *Spring Breakers* exemplifies the paradoxical tendency towards the aestheticisation and management of embodied experience. In both cases, the films address the issue of mediated subjective agency.

Maximum Aestheticisation: *Spring Breakers*, Diegetic Slippages and the Audio-Visual World

As previously explored in this chapter, the iPod allows for a kind of "solipsistic aestheticisation" in which "users attempt to create a seamless web of mediated and privatised experience… enhancing virtually any chosen experience in any geographical location at will" (Bull 40). Indeed, a common observation from iPod users is that they feel like they are experiencing life around them as a film, of which they too are a part (41). In *Spring Breakers* popular music acts to suffuse the entire film, turning its landscape into a continuous music video marked by what Steven Shaviro describes as "delirious aestheticism" ("Seeing Into the Light") and enables the film's characters to live out their fantasy identities. Music on the soundtrack appears to manipulate or alter the material and ontological characteristics of the beach environment, while

the transformative live performance of rapper, Alien, turns the crowd into pixelated characters in video footage, thus dislocating them from their bodies as they become partially digital figures. In the film, four dissatisfied college girls, Faith (Selena Gomez), Candy (Vanessa Hudgeons), Cotty (Rachel Korine) and Brit (Ashley Benson), rob a restaurant in order to acquire the money to go on a trip to Florida for spring break in an effort to experience something different from their mundane existence. Upon arrival, they indulge in drug and alcohol-fuelled hedonism, before being arrested for drug consumption. A mysterious rapper and drug dealer known as Alien (James Franco) bails the girls out of jail and they become involved in his conflicts with other rival drug lords, eventually constituting his posse or gang. Alien takes possession of the girls, posing them sexually with his guns and money. The girls continually tell each other and themselves to "just pretend that it's a fucking video game…act like you're in a movie or something" and, although music videos are not explicitly mentioned, the girls also periodically sing and act out dance routines from 1990s and 2000s pop videos, suggesting that they also imagine themselves as characters within the surreal, exaggerated, illogical and highly stylised world of music videos. Within the film, the performance of popular music acts as an interface that both alters the properties of the physical environment and opens up heightened levels of fantasy-based experience, aestheticising mundane reality and mirroring Bull's description of the function of the iPod (40). Furthermore, the film's sound design layers often asynchronous aural and visual elements over one another, suggesting dual levels of experience/presence. In this way, the film remediates the composite nature of multi-channel mobile devices that combine both aural and visual elements.

Spring Breakers participates in a trend of increasing convergence between audio-visual media. Vernallis argues that "intensified audiovisual aesthetics" mark contemporary music videos, YouTube and digital cinema (4-5). She claims that the logic of music video informs post-classical digital cinema (4-9). Post-classical cinema has been profoundly affected by an "audiovisual turn" featuring "audiovisual passages, musical numbers, and striking audiovisual effects" that further differentiate post-classical cinema from "classical Hollywood narrative filmmaking" (42). Furthermore, the aural and visual language of music video has affected film conventions (69). Vernallis suggests that soundtrack and sound effects now frequently structure a film, while the images are cut according to "an almost percussive rhythmic drive" (69). Meanwhile, films that utilise pop music are frequently episodic in structure and cut to emphasise three-minute montages, matching the form of the music video and the typical length of a song (Lapedis 368-369). *Spring Breakers* exemplifies this more general tendency, but explicitly draws attention to it by depicting popular music as an aestheticizing tool throughout the entire film rather than in isolated sequences.

The film's aestheticisation of Florida is evident from the very first moments. As the opening titles appear, the soundtrack is populated by diegetic, ordinary sounds of the beach, such as the lap of the waves, children and people talking. However, as soon as the image appears it is accompanied only by heavy techno music (EDM superstar DJ Skrillex's music was used for the film, along with Cliff Martinez's original score) and the beach setting appears as it would in a music video with heightened colours and synesthetic effects where the image appears to shudder and/or slow down in time with the bass on the soundtrack. This transformation of space through digital manipulation mirrors the genre of EDM music where sounds are created and processed using digital filters and technologies. Significantly, the element of aural transformation once again emphasises subjective layering: the real space and sounds of the beach are buried beneath the music. The physical characteristics of the beach environment, in terms of motion and time, appear manipulated by the sound layered onto them. The camera focuses not on characters, but on fragmented parts of bodies: bottoms, shaking and pulsating bellies, breasts drenched in liquor. Unlike films of the 80s and 90s, which typically included music video-like passages often in order to cross-promote film and song (Hubbert 303), in *Spring Breakers* the naturalistic setting of the beach is completely subsumed by the music from the start, so that the musically-altered beach drawn from music video representations replaces the imagined 'real' beach with its diegetic sound.

If music on the soundtrack acts to transform and enhance the spatial setting of the beach, the film represents performance within the film as equally transformative in terms of altering the state of mind of the listeners. Just as the college girls perform songs in an imitation of mediated snippets of popular culture, Alien raps over an electronic backing track, once again linking elements of bodily performance and playback. The performance of popular music enacts the same function as the interface of a listening device and headphones, which is to mediate between proprioceptive experience and aurally mediated perception. This mediation is expressed in terms of fluid movement between colour schemes to depict the on-screen space mirroring the aural effect on listeners. In the first sequence in which we are introduced to Alien, he is rapping on stage to a crowd of adoring, drunken college students. Alien tells them, "You just got hypnotised and transported to another realm, y'all," as they toss alien balloon figures up and down. The language and imagery of science fiction not only reinforces Alien's persona, but emphasises the way in which technologised mediation can open up levels of perception and make surroundings strange. The mediation metaphor continues with the colour scheme, as the footage of the crowd alternates between vivid, heightened colour and grainy, low-definition desaturated video footage reminiscent of MTV coverage of spring break celebrations from the

1990s. The performance of popular music by Alien appears to alter not only the minds of the revellers, but the very ontological characteristics of the world in which they are embedded.

Perhaps the most significant performances on-screen, however, are those that mediate between the girls' ordinary identities and their fantasy personae. Kassabian notes that music encountered from a variety of sources, even if not personally selected or listened to attentively, contributes to identity formation, shaping our notions of gendered and national subjectivity (*Ubiquitous Listening* xxvi-xxix). We associate our memories of particular pieces of music with the affect and other bodily responses generated, thus producing a subjectivity that does not originate in the music or the individual's body but in the distributed affective relationship between them (xxviii-xxix). In *Spring Breakers*, the young female protagonists enact distributed subjectivities by interpreting and approximating pop music imagery via their own embodied performances. Throughout the film, the girls sing and act out dance routines from various 1990s songs (Nelly's "Hot in Here" in their college dorm hallway, "Hit Me Baby One More Time" in a liquor store carpark) to fill their vapid lives, stave off boredom and turn regular spaces into music videos and themselves into stars. As Scott Interrante (quoted in Shaviro "Seeing The Light") observes, the girls perform songs that would have emerged during their pre-teen years and would thus have been formative influences on their development and self-identities. By performing these songs in an imitation of iconic fragments of pop music, the girls transform their bodies into playback devices and popular culture commodities. This transformation is ironic in that at least two of the actresses cast in the film (Selena Gomez and Vanessa Hudgens) are indeed contemporary pop singers and thus objects of the pop music industry outside of the film's diegesis. Despite this sense of uncritical imitation, however, it is important to consider how such performances, even if derived from fragments of mass popular culture, enable the young women to negotiate their subjective experiences of space.

The tension between subjective aural management of experience and potential exploitation culminates in a sequence in which the girls and Alien perform Britney Spears's "Everytime." His piano and their voices become an interface within the diegesis that calls forth a non-diegetic recording of the song. This non-diegetic recording aestheticises the violence that they carry out at Alien's bidding, as well as aurally helping to construct the fantasy that the girls have invested in. In the sequence, the remaining girls (Faith has left by this point) emerge from the house carrying AK-47 guns and wearing pink woollen masks with unicorns on them. They ask Alien to play "something sweet… inspiring" on the piano and Alien plays "Everytime," introducing Spears as "one of the greatest singers of all time and an angel if there ever was one." They stand around the piano and progressively join in with Alien, singing along to the tender, affectionate lyrics, "Every time I try to fly I fall without my wings, I feel so small, I guess I need

you…" As they stand on the pier together against the sunset, Spears' original recording is introduced as non-diegetic music. The girls spin around holding the guns and we cut to a montage sequence of the girls helping Alien enact his dominance over his rivals, beating them up and storming in with guns, which is cross-cut with the girls on the beach. The girls' pink masks hide their faces and symbolise their unfeeling personae, while the music acts to aurally embody the fantasy that they have constructed for themselves, a fantasy of engaging in something special, something romantic that validates their senses of self. Earlier in the film the girls describe their experience of spring break as "spiritual," rather than hedonistic.[10] Although the violence is graphic, horrifically cold and distanced, the idealised setting of the beach and layering of the sugary sentimentality of the Britney Spears recording suggest an artificial and romanticised fantasy that they are participating in: a fantasy that is enabled by their investment in the imagery of popular music. We see slow-motion shots of the violence accompanied by the repetition of the line, "Every time I try to fly, I fall without my wings…" The tender music in the sequence acts to construct their image of themselves as stars of a music video as well as represent the idealised way in which they see themselves and their activities. Just as the use of personalised listening devices enables us to aestheticise and construct a pleasant reality for ourselves (Bull 40), here the girls utilise popular music to enable themselves to construct a fantasy level of perception and selfhood, which is superimposed aurally over the image.

The slippage here between diegetic and non-diegetic music structurally parallels the external imposition of recorded music on our surroundings, where we perceive the music both as separate to and part of the world we inhabit. As listeners and users of mobile audio technologies, we acknowledge the sound from our iPods and other devices as an additional, imposed and artificial layer as we move through space, yet despite this recognition the sound nevertheless plays an important part in the construction and constitution of our world and how we perceive it. This paradox mirrors debates in film theory regarding distinctions between diegetic and non-diegetic music. Anahid Kassabian notes that, although non-diegetic sounds are usually thought to be added to the film and thus not part of the film's story world, they nevertheless "contribute to the sense of space, of character articulation, of many things that we would label part of the diegesis" ("The End of Diegesis As We Know It?") Similarly, Daniel Yacavone suggests that rather than thinking of a level of diegetic sound/music with a source within the narrative as divorced from and operating on a different level to non-diegetic music, it is more useful to regard "fictional representations and narrative(s), together with film sound

[10] I must acknowledge Nabeel Zuberi for first raising the idea of pseudo-spirituality in relation to music in *Spring Breakers* in a lecture on the film for his course, "Popular Music on Screen," at The University of Auckland in 2015.

and music" as elements in "a *film world*" (21). This "film world" may be defined as "the created and experienced totality of a film's presentation" which includes, but is not reduced to, "a represented, fictional, or diegetic world" (21). Yacavone cites Ben Winters, who argues that nondiegetic sound is experienced as "part of the same presented reality" for the viewer of the film (Yacavone 23). According to Winters, locating music "in the same realm as the characters as an instance of film-thinking" enables us to grant apparently non-diegetic music "far greater agency to influence the other aspects of the diegesis; the filmmind can suddenly allow the music to be heard by the characters, or imagine it influencing their actions" without giving it an on-screen source (Winters 235). Yacavone furthers this observation by noting that a film contains "numerous perceptual and imaginative levels or strata" (27). These concepts are particularly relevant to the "Everytime" sequence in which the non-diegetic sound of Britney Spears' recording is clearly implicated in the "presented reality" (23) of the film, adding an additional experiential or subjective layer to the violence. This overlap between music issuing from an interface within the story (the piano/voices) and non-diegetic music which nevertheless still contributes to the overall perception of the film's world resonates with the experience of listening to an iPod or using a phone while moving through a physical space. When listening to an iPod, the user recognises the music as issuing from a device, yet still perceives it as part of or acting upon their surroundings. In this way, the user can mediate their subjective experience of a fixed space, even as they intellectually know that this subjectivity is contingent on both technological mediation and their own sensory response to this mediation.

Layering of asynchronous audio spaces over visual spaces resurfaces throughout *Spring Breakers*, relating not only to music, but to other sounds, especially fragments of dialogue, producing audio and visual channels that are separate, yet intertwined. This complicated audio-visual schema remediates the effect created by using headphones to inhabit both an aurally inscribed virtual subjectivity and simultaneously a physical world experienced haptically, or of listening to audio media files while visually browsing the Internet on a multi-channel device. Farnsworth and Austin note that portable devices such as the phone and MP3 player are both "sound technologies" and "hybrid devices" that combine "audio, image and text technologies" (14). This hybridity is the structuring principle of *Spring Breakers.* While the voice-over is a common feature in cinema more broadly, voice-overs usually anchor and situate the images, whereas in this case there is a strong sense of disjuncture between the aural and visual elements. Frequently lines of dialogue, such as the girls' mantra to "act like you're in a movie" or the Alien's sinister cooing of "spring break," are repeated as ghostly disembodied sounds that begin as diegetic sound, but become refrains that are separate from their original source. In this way, the aural soundscape attempts to shape and mould the visuals in the same way that aurally-

enhanced perception shapes experiences of stable spaces, whilst still being to a degree exterior to or autonomous from them. Steven Shaviro describes this effect in terms of "affective dissonance" as we are unsure which sounds/images to place the most trust in ("Seeing The Light"). For example, we hear Faith's phone conversation with her grandmother as she states that, "This is the most spiritual place I've ever been," accompanied by images of drunken revelry. She tells her grandmother that "everyone was so sweet here… so warm and friendly" over video-grade grainy images of a woman shaking her bottom. This phone conversation is not depicted visually until later when it is repeated, creating a sense of disjuncture between the audio and visual channels and emphasising an aural dislocation from Faith's surrounding world. In one sequence in particular the disjunction between sound and image expresses Faith's inability to completely control the world through aural aestheticisation. Following a drug-fuelled romp, the girls are arrested. On the soundtrack we hear Faith's voice saying, "This wasn't the dream… it can't end this way." This refrain accompanies shots of them riding scooters (representing the dream) cross-cut with the police holding cell. Faith is attempting to aurally impose "the dream" on reality, but is unable to change it. In this way the film depicts both the extent and the limitations of aural aestheticisation, while highlighting a sense of dual presence and composite experience in both an immaterial and material landscape. The following section will draw conclusions relating to the connection between agency and control of environment in post-walkman films, with a particular focus on gender subjectivity.

A Woman's World: Gender, Subjectivity and Agency in Post-Walkman Cinema

Post-walkman films have gravitated towards female protagonists and articulate complex visions of female agency through music. These films apply a sense of distributed subjectivity to gendered experience: the women are able to partially dislocate themselves from male-dominated, oppressive environments by imposing their own musically-enhanced perception on their surroundings,[11] whilst also having the option of inhabiting male aural identities that dislocate them from their physically gendered bodies. The films thus build upon a tendency identified by Robyn Stilwell in female-centred rite of passage films to represent music playback technologies, such as the record player, as a form of self-expression for girls (153, 158). Stilwell argues that the voice of a record "melds with the girl's voice, whether her acoustic voice or her metaphorical voice/self, to express who she is" (158). Yet, in these examples of post-walkman cinema the use of music playback becomes a means not only of expression but of negotiating female agency or control of a restrictive or male-centred environment through the use of popular music. The ontological transformation and dislocation wrought by popular music in these films

[11] The connection between composite material/mediated spaces and the problematisation of rigid gender divisions is explored in more depth in Chapter Five's analysis of *Her* and *Lucy*.

is therefore linked to the expression of female subjectivity. Furthermore, the films explore the possibility of adopting and internalising other subjectivities and musical identities, male and female, reflecting what Brikena Ribaj describes as the "fluidity of existence… rendered possible via music" (174).

Whilst male music collecting is generally represented in popular culture as defined by the cultural capital gained from objects, female music appreciation more typically revolves around the use of music for the "internal articulation of self" (Stilwell 153). Similarly, Stilwell observes that stories about boys focus on visible and active "rituals of achievement" such as "overcoming fears and foes, usually in physical confrontation, and gaining the approval of peers, father figures, a mating partner, and their social group at large" (153). On the other hand, girls' stories culminate in "the formation of identity" and a potentially invisible "sense of self" (153). In contrast to "the active, progressive male schema," cinematic representations of "this contemplative, introspective act of self-discovery" utilise more symbolic or associative elements such as "flashback, montage…and music" (153). Although Stilwell goes on to discuss the representation of record players specifically in female-centric coming of age cinema, she emphasises the broader notion that music playback can be used to express the inner life of women and girls (158). *Morvern Callar*, *Sucker Punch* and *Spring Breakers* all utilise music in this way to some extent, suggesting that post-walkman films replicate the gender dynamics of earlier films involving music playback devices even while they represent radical ontological ruptures to express distributed subjectivity. In addition to self-expression, the female characters in these contemporary films use music to varying extents as a means to negotiate and/or subjectively appropriate an otherwise oppressive environment, or to remove themselves from such environments; they thus use partial dislocation and/or aestheticiation as a means of liberation. In this way, post-walkman films adapt the trope of music as self-expression for the more customised and flexible, mobile playback technology of the iPod and mobile phone. As previously noted, in *Morvern Callar*, Morvern's blank silent exterior is contrasted with her rich interior self (Artt). Her lack of physical or verbal expression becomes a strategy of protection, as well as "a way of representing individual freedom" as she chooses to withdraw into her own internal subjectivity (Artt). In *Sucker Punch*, Baby Doll explicitly uses music to unleash her inner strength and find a method to fight, and escape, at least figuratively, her oppressors.

On the other hand, the films collectively suggest that partial dislocation may enable one to engage in distributed subjectivity, but leave one's physical body vulnerable. Nick Jones notes of *Sucker Punch* that due to sexualised, fetishising costuming, including sailor outfits and burlesque-inspired lingerie, and the ambiguity as to whether the girls achieve anything significant narratively, the sequences that espouse female liberation nevertheless function as

empty and objectifying bodily display for the viewer's pleasure (104). *Spring Breakers* is even more complex in terms of the relationship between perceptual pleasure and objective representation. The girls utilise popular music both to enrich their dull, meaningless lives through spontaneous performances of songs and to idealise their relationship with Alien. In the sequence described earlier, for example, they use Britney Spears' music as a means to construct a sense of spiritual purpose, allowing them to transform what is essentially labour for Alien's business/criminal interests into a transcendent experience and dislocate themselves from the horrific aspects of the violence. In *Spring Breakers*, music appears to be an escape for the girls, but the film is ambiguous as to whether the music embodies self-expression/agency or whether it facilitates their exploitation. In embodying the images presented to them in the highly sexualised pop songs that they perform, the protagonists of *Spring Breakers* both aestheticise their environments and objectify themselves, foreshadowing their later roles as Alien's army. As in *Sucker Punch*, the frequent nudity in the film and visual concentration on the bodies of the young stars renders the expression of the characters' subjectivity deeply compromised. Music, therefore, is equally a tool for extending and spatialising female subjectivity on the one hand and for shaping female subjectivity in potentially negative ways on the other.

If music often embodies female interiority, it nevertheless simultaneously mediates and fragments female subjectivity, which may contribute to this paradoxical loss of agency. It is not the woman's feelings that we hear, but the woman's expression refracted through an external musical voice (Stilwell 158). This "voice" may be male or female and thus subjectivity becomes distributed and dislocated from the sexed body. The iPod enhances this complication of gendered voices as it enables us to move swiftly between different songs and different voices. Ribaj notes that we utilise music to embody different identities as we select different types of music to accompany our performance of different roles in our lives, for example we might listen to one type of music while we are working in our office and another when we are with our partners (174). Due to its large storage capacity, the iPod enables us to carry all of these potential musically-enhanced identities with us all the time (174). Invoking Judith Butler's idea that our identities are fluid due to the various societal roles we play (174), Ribaj views the iPod with its library of different types of music available to us in our pockets as "a hypermodern 'text'" that "may be used to read the simultaneous multiplicity of gendered identities"(173).

Examples of post-walkman cinema build upon this idea of a distributed subjectivity split between multiple musical identities. There is a sense in which both Morvern and Baby Doll embody both male and female subjectivities through listening to and internalising music made and/or selected by men. Morvern's internal landscape is represented by the music that we frequently hear filling the soundtrack accompanied by shots of her face, implying a connection

between her thoughts and the music, yet many of the tracks that we hear are produced by male artists and the entire mix was compiled by her now dead boyfriend as a gift for her. In this way, the music embodies simultaneously Morvern's (female) subjectivity, the (multi-gendered) subjectivity of the artists and songwriters featured and the (male) subjectivity of her boyfriend in selecting the songs. Similarly, Baby Doll in *Sucker Punch* performs to multiple songs, some by male and some by female artists. We also hear multiple covers (such as The Pixies' "Where is My Mind?" and The Smiths' "Asleep") recorded by actress Emily Browning on the soundtrack. As they are performed by Browning herself, the film implies that these songs are internal expressions of her character's subjectivity, yet this expression is clearly mediated by the songs used to express it. Both Morvern and Baby Doll therefore embody multiple gendered mental spaces, extending the ontological ambiguity of the films to the realm of gendered mental space and associating composite subjectivity with composite space. In the case of *Spring Breakers*, the girls express themselves through singing and dancing to songs mostly written and/or performed by women, but including some male-driven songs (for example Nelly's 2002 hit "Hot in Here") in which they seem to enact or play out a vision of femininity derived from a male, objectifying perspective. Furthermore, while their feminine subjectivity becomes associated with the Britney Spears song "Sometimes," it serves the goals of Alien, and is thus manipulated. In this sense, distributed subjectivity enables a negotiated gendered space, but not unfettered agency. Fluid digital subjectivities thus have both the capacity to be empowering and to threaten one's integrity.

A rare example of post-walkman cinema featuring a male protagonist can be found in 2017's *Baby Driver* (Edgar Wright). The film shares many of the characteristics of the films analysed in this chapter, particularly the connection between distributed subjectivity and composite space. Ansel Elgort plays Baby, a getaway driver working for large-scale criminal, Doc (Kevin Spacey) in order to pay off his debt for a mistake he once made. Suffering from tinnitus as a result of a car crash in his childhood that killed his mother, Baby listens to music constantly on his iPod. The film explicitly likens the experience of listening to an iPod to that of being in a musical in several sequences. For example, early in the film Baby picks up coffee for the bank robbery team and in a long take appears to dance around the people on the street and in the café. In another later sequence, he shares his headphones with his girlfriend, Debora (Lily James) in a laundromat and the rotating clothes in the washing machines behind them take on the appearance of dancers as they embrace. Richard Koeck argues that there is an inherent link between listening to an iPod and cinema, because the former "introduces a quasi soundtrack to urban spaces in ways that are not dissimilar to a movie experience. Devices such as mobile phones and iPods empower us to do what only film directors can normally do" (117). This

feeling of inhabiting a movie is replicated by the film's utilisation of the conventions of musicals in its presentation of Baby's interactions with space. Baby not only feels that he is living with a soundtrack, but he negotiates his environment as if he were in a film musical.

Even with a male protagonist, distributed presence in a composite material/aural space is depicted as both a coping strategy to negotiate hostile (gendered) environments and, significantly, a marker of fluid or unfixed identity, which is further emphasised by the gender-neutral name, Baby. Baby's music listening enables him to distance himself from the crimes he helps commit, about which he is morally conflicted. Baby is literally unable to drive without music playing, suggesting that he cannot fulfil his role in the operation without re-imagining the action sequences as musicals. The film's meticulous choreographing of action movements to the diegetic music Baby is listening to plays upon the commonalities between action films and musicals, which both offer sequences that depart from the normal laws and constraints of physical space that may apply in other sections of the film (Jones 6), and emphasises Baby's mental transformation of his environment. Baby furthermore utilises music to shut out unpleasant aspects of the world, as evidenced in the flashbacks to Baby as a child, using his iPod to drown out his parents fighting. In these scenes, Baby witnesses the abuse of his mother by his father, but is able to erase these aspects of masculine domination using music. More than simply enabling Baby to cope with life, however, aural spaces give Baby his limited sense of identity. Hardly ever speaking, Baby takes on the role of a literal infant whose growth and communication skills are stunted by the car accident that took his mother's life. He does not express himself externally, but rather relies entirely upon an inner world of music. Rather than moving on from this incident and becoming a "man," Baby instead listens to music that reminds him of his mother, a singer who loved music, on a range of iPods. His most precious iPod is the one he was listening to when his mother died. In this way, Baby generates an aural world in an attempt to bring his mother back to life through incorporating her passion for music into his own subjectivity. He may be male, but his mother's influence and taste remains crucial to the self-curated composite musical identity in which he has chosen to immerse himself in lieu of a public, fixed identity of his own. Baby's sense of self seems to be made up of all the diverse music, by both male and female artists that he listens to, rather than being rooted in his masculine body or macho role as a getaway driver. In this way, connections between ubiquitous music, composite subjectivity and a malleable self emerge despite the switch of sex of the protagonist.

Conclusion: Interfacing with Layers of Aural Experience

Hilary Lapedis, writing in the late 1990s, argued that popular music in contemporary cinema "offers the audience a hybrid text of escapism: one that draws on the visual codes of the music video, the structure of the pop song and the commodified expectations of the audience" (370).

In the films discussed in this chapter, musical interfaces and quasi-interfaces offer a particular brand of subjective escapism that acts to radically destabilise the ontological properties of the film. Each of *Morvern Callar*, *Sucker Punch* and *Spring Breakers* presents a different, and progressively more complex, approach to depicting a reality suffused by aural channels.

Morvern Callar directly depicts a personal listening device (in this case the older Walkman) and contrasts internal subjectivity as represented by music with the blank expressionless surface that Samantha Morton's character displays to the world. *Sucker Punch* and *Spring Breakers* take more radical and stylistically heightened approaches. In representing the playback and/or performance of popular music as interfaces that call forth additional layers of perception and open up hybrid spaces, *Sucker Punch* and *Spring Breakers* adapt the traditional structure of the Hollywood musical (where the musical number allows a temporary disavowal of the normal rules of narrative, spatial and physical logic) to reflect the technological context of mobile, privatised devices that enable both aural dislocation from and aestheticisation of material reality. *Baby Driver* comes full circle by explicitly linking the musical genre to the technology of the iPod.

Importantly, these films exemplify a crucial element of contemporary spatial negotiation through their aesthetics. In each film, distributed subjectivity links to composite aural/material space and this distributed subjectivity allows the characters to cope with hostile surroundings. In *Sucker Punch*, a record opens up liberatory psychological space, while in *Spring Breakers* audio channels act both to alter the ontological properties of the environment and to construct a heightened fantastical perception, drawn from popular music and layered onto the action. This transformative effect is manifested in a complex network of remediation and contradictory audio-visual elements. In Chapter One I suggested that composite mediascapes often layer mediated ways of visually perceiving the world on material space within a film; in this chapter I have suggested that aural aspects can act similarly to interface between mediation and materiality, fantasy and reality, the mundane and the strange. I have also suggested that distributed or composite subjectivity may enable individuals to mentally negotiate a physical space in a way that makes that space easier for them to inhabit, but nevertheless fails to adequately protect their bodies from exploitation within that space. The following chapter will turn its attention to colour's role in articulating composite material/mediatised space linking layered perception to visual networks of places, objects and bodies.

3. Lights, Colour, Mediation: Networked Colour

In *The Matrix* (1999), the colour palette of the computerised world of the matrix is dominated by green, representing the physical manifestation of the green digits that make up the code that defines this cyberspace (Misek 160-61). The computer's structuring presence is represented through colour, and the computerised world has a distinct predominantly green colour scheme that contrasts with the 'real' world (161). This aesthetic reflects prevalent notions in the 1990s of an immaterial cyberspace made entirely of computer digits, linked especially to the prominence of computer-generated online spaces and video game simulations of reality. Although the colour scheme in *The Matrix* is actually produced through optical effects, that is effects produced in camera or on set rather than computer-generated, it is contemporaneous with early experiments with digital colour, which demonstrated a general monochromatic tendency (164). Films tended to achieve this monochromatic effect "by partially desaturating a full color image and then adding a single colorized tint to it" (164). Chapter Three examines two more recent films, Gaspar Noé's *Enter The Void (*2009) and Jonathan Glazer's *Under The Skin* (2013), which use a combination of analogue and digital colour to establish a different set of relations between bodies, environments and objects. Rather than a static monochrome tint that defines or distinguishes an alternative realm from material reality, these films depict abstract colour as an active, mobile force layered over the material world that is able to connect, emanate from and envelop objects, bodies and spaces. Abstract colour is itself mobile and bleeds out from objects and/or spaces, seemingly merging both with the surrounding environment and with human bodies. This sense of colour as a mobile, networked force that can jump and pass through objects, people and places parallels contemporary understandings of digitally networked space. In our contemporary media landscape, we are connected constantly to various mobile devices, which are in turn connected to wireless networks that link together spatial zones of connectivity with devices and users. Whilst the films are neither a direct reflection nor visualisation of these technologies, they nevertheless imply a universe that operates according to similar principles of connectivity. Colour operates like a wireless connection passing between and through objects, places and people, which all act as interfaces in an interconnected network of colour. The two films vary in their articulations of the directional relationships between these networked spaces, bodies and subjectivities, thus contributing to ambivalence about the degree of subjective agency afforded to inhabitants of composite spaces. While *Enter The Void* addresses the potential disintegration and disassociation of the subject, in *Under The Skin* colour signifies the spatial extension of the bodily and subjective agency of the female-coded alien protagonist.

Coloured objects and spaces in these films share some similarities with Marsha Kinder's conceptualisation of narrative "hot spots" (10). Kinder analyses the work of surrealist master

Luis Bunuel to argue that "he uses…objects as interface devices" that "enable the story, camera, character, or spectator to move from one scene or narrative realm to another" (10). She compares this invocation of "hotspots" to modern interfaces used by computing devices, especially the CD-Rom and desktop icon. Kinder gives the example of *Belle de Jour* (1967), where "the sounds of screeching cats or the bells of a horse-drawn carriage provide entry into erotic fantasies" (10). Kinder is interested primarily in narrative devices, especially in relation to "database narrative," and limits her analysis to the work of a single director. The notion of hotspots within the shot as interfaces can nevertheless be adapted to theorise the use of colour in contemporary digital cinema. I analyse *Enter The Void* and *Under The Skin* in terms of the way objects, bodies and spaces act as interfaces within a network of colour. These interfaces act to unleash mobile colour formations that then spill out and envelop everything that they come into contact with, capable of subsuming and/or empowering subjectivities and bodies. I suggest that the way in which colour operates in these films mirrors the spatial properties of today's media environment in which interface objects and spatial zones are connected by wireless networks.

While interfaces feature heavily in earlier films about parallel levels of ontological space, such as the phone booths in *The Matrix*, the interfaces in these films act to transport the character mentally from one space to another and act as defined boundary points between levels, rather than forming a network of objects within the same reality. The phone booths in *The Matrix* also significantly emphasise wired communication and directly reference phone lines, a technology that both transmutes voices into signals and people into digital representations. Unlike this explicit allusion to communication technology, the films I analyse feature spaces and objects that may not resemble media but nevertheless act as hotspots. These "hotspots" could also be considered to parallel the interfaces operating within media devices, such as icons or shortcuts, rather than the devices themselves as interfaces; however, the parallel with the devices themselves appears more appropriate as the cinematic interface-objects lack defined graphical boundaries and colour tends to spill out onto other foreign objects, spaces and people rather than different segments of the same original object. The hotspot as object thus co-exists with the hotspot as zone, implying a network of interconnected objects and places. This emphasis on the integration of seamless interfaces into spaces, objects and environments parallels the concept discussed in computing literature of the "web of things" (Heuer, Hund and Pfaff 34). The term refers to the prediction that physical objects, appliances and systems that have traditionally "not been connected" will be increasingly incorporated into networks and communicates with one another wirelessly (41, 34). The concept of seamless connection between objects extends already existing paradigms for the web, such as the use of hyperlinks

to connect data and the use of social networks to connect users (41). The films analysed here also present environments where connectivity is extended beyond traditional interfaces.

Like the films discussed in Chapter Two, neither *Enter The Void* nor *Under The Skin* is about technology per se, although both do make passing reference to technologies such as mobile phones. In each case, however, coloured objects and zones seem to unleash alternative layers of perception within or over material spaces that then swallow up or incorporate bodies and physical structures. Thus, in common with the other films discussed in previous chapters, the films do not remediate specific technologies, but rather share characteristics with the "modes of mediation"(Galloway 13) implied by these technologies as tools for perceiving and navigating space. Aylish Wood, writing about the use of effects in both live-action and animated film, proposes the notion of an "inscribed interface," where the viewer is made aware of the presence of technology because "the elements making up the imagery are not always directed towards the story-world in ways that support only character actions" (29). The presence of "unexpected spatial transitions" thus makes the viewer conscious "that this spatial experience is also a technological one," emphasising technology's "capacity to alter spatio-temporal experiences" (29). Wood goes on to describe the concept of "dynamic space," referring to "when digital effects give extended movement to spatial elements, again creating a transforming space" (53-54). While Wood is concerned primarily with effects-driven creations in blockbusters, the films discussed in this chapter similarly depict elements of colour and light that seem to possess their own agency and transform space. Often they are initially directed by character action but then appear to take on a life of their own. In *Enter The Void,* the camera is frequently drawn to coloured objects rather than characters in the shot and then descends into the objects until they literally take up the whole frame, while in *Under the Skin* blocks and formations of liquid colour begin to envelop the bodies of the male characters, eviscerating them. The presence of colour as a force is thus foregrounded. Elements of dynamic space function like portholes or interfaces and unleash abstract effects that spill over onto material people, things and spaces.

Digital effects that enable the filmmakers to manipulate, enhance or add individual coloured elements within a shot help to facilitate this creation of colour interfaces and turn colour into an active force by giving it the dynamic properties that Wood describes (53-54). Post-production effects allow filmmakers to blend physical environments and elements of natural colour with digitally altered sections of a shot, enhancing, adding or altering particular objects, colours or even regions of the frame (Misek 158-159). With advanced colour correctors, a single element of a shot can be altered to distinguish it from the "environmental colour" of the other elements (158-159). Examples include the combination of analogue effects and digital colour grading in the evisceration sequences in *Under The Skin* ("Baselight"; "Under the Skin:

VFX") and the pulsating abstract patterns of light and colour that spread out across spaces and bodies in *Enter The Void*. In this way, a single element of added or enhanced colour within the images captured by the camera can become an interface into an entirely digitally-created alternative layer of perception and, crucially, can interact with what the camera has shot, just as abstract colour interacts with actors' bodies and physical sets in the films analysed by this chapter.

In each film, play with colour allows the filmmakers to explore distributed and/or layered perception, as well as the balance of agency between the body, subjectivity and the environments in which they move. Both films imply layered spaces in their very title, suggesting that they take the viewer beyond surface layers to 'enter' a space or move 'under' the top layer. Each film furthermore visually articulates layered subjectivity, represented by a floating perspective that drifts over the city grid via camera movement in *Enter The Void* and the alien gaze, visualised by a yellow superimposition of her face, over the city scenes in *Under The Skin*. This perceptual layering becomes associated with layered composite spaces made up of physically concrete elements and abstract colour. While in *Enter The Void*, bodies appear to become dominated by the environment and perspective drifts seemingly aimlessly for large sections of the film, *Under The Skin* implies a greater degree of environmental control for the alien whose perspective and body seem to be the sources of the abstract colour that envelops other bodies. In common with a number of the films analysed in this thesis, composite spaces are shown to be both potentially empowering and disempowering for women in particular. *Enter the Void* depicts the female body as frequently subsumed or integrated into the neon, coloured spaces of Tokyo, linking colour to bodily exploitation and oppressive environments, while the male protagonist's subjectivity floats freely disassociated from his dead body. On the other hand, *Under The Skin* depicts a feminine alien protagonist who inhabits spaces that could be traditionally considered dangerous for women such as nightclubs, but dominates these spaces by generating abstract colour formations that literally destroy male bodies. Both her subjectivity and her adopted female body become controlling forces in composite environments. In this way her own status as a composite being (she is an alien subjectivity who has taken the form of a dead woman's human body) is matched by her powerful composite abstract/material presence. The films thus present subtly different perspectives on the relationship between composite space and bodily agency, explored through the use of colour.

The chapter will begin with a discussion of the ontology-defining function of colour in cinema before exploring the hybridity between environmental and digital elements implied by the era of digital colour in particular. It will then move onto an in-depth discussion of the use of colour in the two primary case studies, *Enter The Void* and *Under The Skin*, to explore how

objects, bodies and environments become interfaces connected by networks of colour, paying particular attention to the relationship between the body, the network and subjectivity.

Rainbow Worlds: Colour and Ontology

Stanley Cavell argues that colour helps to create the "total world" of a film, in the sense that colour creates an overall impression of the ontological status of a cinematic universe (80). Paul Coates develops this idea, arguing that colour possesses this world-defining property because it has an especial ability to become "a key agent of realism's unsettling" (6). When objects and spaces on screen are coloured differently to their origins or equivalents in the material realm this disparity "generates a world that is no longer self-evident" (6). In fact, this potential for colour to upset realistic norms generated anxiety even from the earliest days of Technicolor (Misek 36-37). For almost two decades from the 1930s through to the 1950s, Technicolor provided a compulsory colour consultant, one Natalie Kalmus, who penned an influential article in 1935 on the subject of "colour consciousness" (36). The article argued that colour represented a step toward "perceptual realism" in cinema and dictated that directors should adopt natural colour schemes, replicating the colours of objects in the real world (36-37). Colour should only draw attention to itself if it was "narratively relevant, because it might distract from other areas of the frame of greater narrative relevance" (37). These imposed industry standards were, of course, intended to serve Technicolor's own commercial interests, as it was to their advantage for colour to become normalised as just another facet of the "pre-existing classical Hollywood ideology of narrative motivation," rather than being associated with spectacular or unusual genres (36-37). Nevertheless, the notion of "colour consciousness" points to the ontological significance of colour in establishing the rules and logics of an on-screen world.

When the ontological rules of a cinematic world do not align with those of the known or familiar material world, fantasy comes into play. Coates notes that ostentatious colour has been associated with fantasy "partly because the very idea that humans could control the world's colours has been felt to be fantastic by most societies throughout history," thus creating a link between "bright colour" and alternative realms (140). Due to this association, some of the earliest films to utilise bright, unusually extreme or heightened colours, such as *The Adventures of Robin Hood* (Michael Curtiz and William Keighley 1938), were "children's tales" that operated within "a consistent region of make-believe" (Cavell 81). In these films, colour still acted to "unify the projected world" despite their rejection of "the spatio-temporal consistency of the real world" (81). Similarly, Cavell notes the use of colour in dystopian films, even those set in ostensibly contemporary settings, such as *Red Desert* (Michelangelo Antonioni 1963) to situate the film in "a world of an immediate future" (82). In this way, extreme colour becomes associated with genres rooted in the fantastic and the speculative.

On the other hand, colour can also be used in the opposite manner; rather than creating a consistent unified world, colour can be used to "juxtapose opposing moods and to symbolize mutually exclusive environments" (Cavell 84). In this way, colour is used to represent hybrid ontological conditions where reality and fantasy coexist. Cavell discusses in particular the prominent examples of *Rosemary's Baby* (Roman Polanski 1968) and *Vertigo* (Alfred Hitchcock 1958), where he claims that colour helps to distinguish between an physical, objective level of reality and "a world of private fantasy" rooted in "individual psychology" (84). Many hybrid films went as far as to create binary worlds within a filmic universe using colour and black and white "in order to signal moves between opposed physical spaces or perceptual states" (Misek 32). For example, in *The Wizard of Oz* (Victor Fleming 1939) colour and monochrome signify dreaming and waking respectively, with a pair of red shoes acting as a tiny colour interface between the two worlds, while in *A Matter of Life and Death* (Michael Powell 1946) colour and black and white separate earth and heaven (32-33). The films discussed in this chapter build upon this legacy of hybridity by using coloured objects and spaces as interfaces between alternate layers of perception and subjectivity, but integrate these alternative layers within or over their film worlds, rather than creating two separate realms divided into black and white and colour. Although other films, particularly within fantastical genres such as horror and science fiction and of course the lush, vibrant spaces of musicals, have invoked a range of colours throughout the film world to represent excessive emotion, terror or unfamiliar worlds, such films do not demonstrate a sense of coloured objects and spaces acting as interfaces between perceptual levels; colour represents a heightened state, but does not appear to be the source of the perceptual transformation. In this respect, Nicolas Roeg's *Don't Look Now* (1973) is perhaps the closest antecedent to the films discussed at length in this chapter: in this seminal horror film a grieving couple, John and Christine (Donald Sutherland and Julie Christie) travel to Venice where John is working on a project to restore a church. Here, they are haunted by memories of their deceased daughter, who drowned while wearing a bright red raincoat. Red objects are emphasised throughout the film as interfaces between present time and traumatic memories. In one notable sequence John knocks over some water onto a slide that he is examining and the colour red spreads across the slide, almost filling the frame. In this sequence, dynamic colour becomes a metaphor for the overwhelming psychological excess of John's memories and loss. The films I examine similarly use colour as an interface and thus draw from the artistic tendencies of films such as *Don't Look Now*, but in these films active colour both provides a metaphor for the psychological *and* interacts with and envelops bodies within spaces.

Colour as an aesthetic element provides an apt metaphor for the virtual as colour has traditionally been associated not only with fantasy, but with immateriality and the abstract

(Price 79). Brian Price notes that in traditional art theory, colour has been consistently opposed to line, because "line controls color by creating a figure in which color will be contained" (79). Unlike more representational works of art, artworks based on abstract colour invoke the "formless," encouraging "perceptual multiplicity" (83). In terms of cinema, Price argues that when aspects of abstract colour emerge from "within the space of the narrative," they disrupt cinematic narrative convention in the same way that colour disrupts the order of line in art (78-79). If narrative space can be substituted for material space in the real world, colour acts as an explosion of abstract, subjective perception in the same way that virtual subjectivities integrate with physical, objective spaces when users enter simultaneous immaterial spaces through technological mobile interfaces. Indeed, special effects pioneer Douglas Trumbull explored the connections between colour and mediated or technologically-altered perception when he utilised abstract colour formations to represent technological travel through space and time and machine-generated representations of brain activities respectively in Stanley Kubrick's *2001: A Space Odyssey* (1968) and Trumbull's own *Brainstorm* (1983). Although the films explored in the remainder of this chapter are not explicitly concerned with the virtual, their usage of abstract colour implies a layering of alternate ontological states, and levels of distributed perception, within and onto material spaces. Furthermore, a certain equivalence can be established between colour and wifi. As detailed above, colour is often tied to objects and helps give objects realism by mirroring the off-screen world, but colour is also able to exceed the 'lines' of these objects, providing an abstract force, and to heighten or augment objects and spaces with the use of filters in film. Wifi is similarly sourced from an object (a modem or device) and thus can be visualised or symbolised in the form of an object, but also exceeds the boundaries of that object. Wifi is able to connect any two or more objects in a network, but it also runs between these objects, so it spills over, just as abstract colour is able to spill over an object or space. In relation to the specific films analysed in this chapter, coloured objects and spaces act as hotspots within material worlds, often containing or unleashing abstract colour formations that appear to represent a different ontological layer, but interact with other material elements. This abstract colour is achieved in part through the use of digital special effects tools, which inherently generate an ontologically fluid image as discussed in the following section.

Colour 2.0: Digital Colour, Special Effects and Hybrid Images

Misek argues that distinctions between colour schemes have always delineated realms of "space-time," but the signification associated with these colour schemes has evolved over three distinct periods of cinema history:

> In classical Hollywood, black-and-white signified the default spatio-temporal state and color the altered state. In post-classical Hollywood, color became the default state and black-and-white the altered state. In contemporary Hollywood, realistic color is the default state and digital color is the altered state (177).

By digital colour, Misek refers to "color that results when the color values of an image are digitally manipulated" (152). This chapter addresses films that utilise both "digital colour" and colour elements that are added onto an image through digital special effects. In each case, physical elements, whether actors or other elements of mise-en-scene, are blended with digitally-generated colour elements and layers.[12] These elements of digitally added or enhanced colour represent an alternate or alien level of experience. It is worth noting that digital colour in particular lends itself to colour that is "not realistically motivated" due to the fact that "it is no longer diegetic; it exists in digital space, and so need not approximate Newtonian color," with Newtonian colour being defined as the use of colours as they normally appear in the real world attached to physical objects (168). Thus, digitally created or altered elements of colour have a peculiar affinity with the depiction of states or worlds that are outside of the norms of ordinary experience or engage the realm of the virtual.

The ability to manipulate individual elements of a shot results in hybridity between natural or environmental colour and colour that is altered in post-production. Visual effects are added as additional layers to the image as they were with comparable analogue techniques such as optical printing; however "all components of every layer are susceptible to being changed and tweaked, whether they are a live-action element or a computer-created one" (Prince 5). This hybridity is in fact a feature of contemporary digital effects in cinema more broadly, which, William Brown argues, are unique in their ability to place elements of reality next to elements of fantasy in a single shot and thus create a single world in which "both seemingly share the same ontological status" (17).

This interaction between digital elements and the photographic record of actual, physical spaces and bodies resonates both with other aspects of digital culture and with the fluidity between digitally-altered and material space that has now become commonplace both on and off screen. Indeed, Aaron Tucker explains that "the digitally literate spectator lives in a world where every document they interact with has been digitally altered or constructed, in both the mass media… or in small-scale social interactions (photoshopping a photo of oneself before positing it to Facebook)" (90). Lev Manovich has written about the ontological implications of

[12] It should be noted that, as most contemporary films are shot on digital technology rather than film, in fact all elements of scene may be considered 'digital.' I maintain, however, a distinction between elements captured or recorded using digital technology and those produced entirely or significantly altered through digital effects.

the ability to alter individual aspects of an image in photography, focusing upon the photo-editing programme Photoshop. He explains how the layers feature added to Photoshop 3.0 in 1994 enabled users to alter a particular element of an image without changing the others ("Inside Photoshop" n.p). He claims that this feature was far more than a practical application but in fact signalled a redefinition of "both how images are created and what an 'image' actually means. What used to be an indivisible whole becomes a composite of separate parts" ("Inside Photoshop"). Images became composed of malleable and divisible layers ("Inside Photoshop"). Easy to use programmes and applications offering filters and effects designed for the amateur social media photographer, such as Instagram and basic photo editors available on most smart phones, have increased the ubiquity and acceptance of photo editing even further. We frequently filter our photographic records of our lives by adding effects and correcting image imperfections: an altered image has become the norm. Therefore, the use of digital filters, special effects and digital intermediaries to heighten or defamiliarize colours aligns with the wider trend in digital culture where each image is increasingly "edited, remixed, organized and shared with software" ("Inside Photoshop").

John Tinnell links the aspect of layering and filtering images to the potential in augmented reality technologies to produce "layers of multimedia… primed for post-desktop circulation amid extra-computational entities and events in the lifeworld" (79). He posits that the ability to add mediated effects to photographic images of real things mirrors our relationship to mediated environments as "web browsing becomes world browsing" (79). Tinnell is primarily discussing models for creative or artistic uses of augmented reality platforms in the real world and does not mention cinema, but, as Tucker identifies, a similar parallel can be made between the use of digital effects in contemporary film and the relationship between mediation and material space in everyday life, in which "wherever the user of a smart phone goes, s/he…effects/manipulates the space as s/he enters or leaves" (Tucker 85). As a specific element of special effects, digital colour manipulation enables digitally-enhanced objects and spaces to interact with physical, environmental aspects of the image, just as devices and hotspots function as pockets of virtual space within material surroundings. Digital colour in contemporary cinema thrives upon hybridity between environmental imagery (i.e. depicting elements that were placed in front of camera) and computer-generated imagery, thus producing a model of an integrated virtual and physical space that shares characteristics with the contemporary media landscape. It is for this reason that, Tucker argues, modern spectators accept, relate to, or even crave hybrid physical/computer-generated environments on screen (90). I thus suggest that digitally added or enhanced colour and/or special effects possess a unique potential to mirror the dynamics of material/mediatised space because digital elements exist alongside and layered within or over

the material world captured by the camera. Similarly, in augmented reality models, the virtual is not separate from, but becomes embedded in, the real world.

Although digital colour manipulation is a crucial element of numerous contemporary films that could potentially be discussed, in this chapter I distinguish, drawing upon Philipp Schmerheim's model, between films in which colour produces an affective response from the audience alone and those in which colour instigates or represents a change in characters' perception of the world (116). Schmerheim compares *Sin City* (Frank Miller and Robert Rodriguez, 2005) with *Pleasantville* (Gary Ross, 1998), claiming that in the former the blend of black and white and colour elements possesses "no significance for the film characters themselves" whereas in the latter colour "assume[s] an intra-diegetic narrative function" as the characters themselves are aware of changes in the colour scheme (116-120). In *Under The Skin*, colour clearly performs a narrative function as the men can see the abstract colour formations that subsume them and colour becomes closely linked with representing the alien's perspective. *Enter The Void,* on the other hand, problematises Schmerheim's categorisation, as the abstract colour formations are not necessarily always visible to the characters in every case, yet they visually represent a perceptual state and thus cannot be separated from the diegesis.

In the remainder of this chapter I will demonstrate how abstract colour in *Enter The Void* and *Under The Skin* operates at a textual level as a network that connects - and subsumes - material objects, places and bodies. Beyond this textual analysis, however, the films generate a complex relationship between mediation and material space in their means of production: each shot that involves a combination of environmental and digitally-manipulated colour constitutes a hybrid of the physical and the virtual. Although they should not be viewed as a direct representation of, or response to, contemporary real-world media, cinematic representations of hybrid digital/material environments engage with a wider turn towards integration of the material and the virtual in conceptualisations of both cinematic and real-world space. The relationship between colour abstractions and human bodies in these films thus provides an opportunity to examine the way that we mentally and physically negotiate partially mediatised environments.

Colouring The Void: Micro-Worlds of Colour and Mediated Bodies in *Enter The Void*

Directed by provocative French/Argentinian auteur Gaspar Noé, *Enter The Void* is a hallucinatory odyssey set in the neon city of Tokyo, characterised by its unusual colour-scape and oneiric qualities. The film initially aligns itself with the point of view of Oscar (Nathaniel Brown), a small-time drug dealer. Early in the film Oscar is killed by the police in a club bathroom after his friend betrays him. Echoing an earlier discussion in the film about the

separation of the body and the soul, the camera begins to follow what appears to be Oscar's soul as it roams the city following his stripper sister, Linda (Paz de la Huerta). Using this vantage point, the film depicts the effects of Oscar's death and slowly reveals Oscar's traumatic childhood, which defines and influences the siblings' pasts and present identities, in flashbacks, with a particular focus on a car crash that killed their parents. Oscar's subjectivity becomes increasingly disassociated from his body throughout the film. This perceptual duality suffuses the film, presenting initially in the form of layered colour patterns indicating hallucinatory disassociation and later expressed through this gliding camera movement. While Oscar's mobile perspective is layered over the neon world of the film, colour appears to engulf Linda's body, trapping her *within* the world. In each case, the relationship between the environment and the individual's agency is ambiguous, implying a lack of direction or control.

Although the film features few references to technology as such, it is set in a city in which mediation, in the form of heightened light, exudes from almost every neon surface of the city and every lit object within the buildings. Throughout the film, networked patterns of colour and light envelop both spaces and bodies and create visual equivalents between the internal workings of the body and the mediated city that these bodies inhabit. The film features the camera gliding over the city grid, dream-like repetitions, flashing lights and sequences of abstract colour with light appearing to leech out of people, sets and objects. Indeed the importance of colour and light is signalled from the opening of the film, in which we see the title flashing at us in a number of different fonts and colours. The effect of neon flashing lights from outside can be seen across the whole film with the image itself often flickering, while many of the interior spaces, especially the clubs, are dominated by unusual or psychedelic lights that seem to envelop both people and buildings in connected beams and shapes of colour. Visual effects supervisor Geoffrey Niquet describes how in the shots gliding over the city the team "accentuated the colors of the neon signs, the reflections on the wet sidewalks and blacks of the roofs" to provide "a dreamlike quality" (Failes n.p.). Gaspar Noé himself confirms that visual effects saturate the film to the extent that every shot contains a combination of computer-generated and analogue footage: "Everything in the image had to be retouched or recreated in computer graphics" (Harris).

While the film's hallucinatory feel seems largely to align it with other films that deal with drugs and altered states, there are several significant ways in which the film parallels the spatial logics of contemporary mediated existence. There is an integration of bodies and mediated environments in the sequences in which bodies become incorporated into the club lighting, for example, suggesting that the two are inseparable and interchangeable, just as mobile technologies become increasingly embodied on our person and embedded within the world that

surrounds us and just as we may envision a fully-networked space. Paradoxically, there is also a disassociation between physicality and perspective in the later parts of the film as Oscar's soul floats over the city, thus suggesting a city layered with subjectivity and again paralleling mobile media's ability to produce composite spaces defined by distributed perception. Thus the film parallels two seemingly contradictory features of contemporary mediated existence: the integration of technology into our material world on the one hand and the pervasive distribution of attention and perspective on the other. Like *Under The Skin*, the film represents bodies, lights and spaces as connected by networks of mobile colour, just as we are increasingly connected by digital networks that link our bodies to our interface devices and to hotspots of online space. More specifically, coloured objects operate as interfaces to contain abstract micro-worlds, paralleling both the way that small mobile media can function as portholes into virtual worlds and the use of musical playback devices to open up new spaces as illustrated by the discussion of *Sucker Punch* in Chapter Two. If films such as *The Matrix* and *TRON* reflected the notion of a computerised, digital cyberspace as a separate and contained realm entered via interfaces that remove the user's consciousness from one space and deposit them in another, *Enter the Void* presents a world in which any coloured or lit object from material space can be an entry point into an alternative perceptual or subjective layer within a space, defined by abstract colour and digital effects.

In the film's early section prior to Oscar's death, abstract colour formations represent a hybrid mental state. The body remains in the physical realm, but the film's often-utilised colour formations, which resemble the network of vessels in models of the human brain, suggest that Oscar's mind is operating in a heightened level of perceptual experience layered over his physical outward self, much as the colour special effects create layers within the image and as virtual spaces are frequently layered over material reality. This sense of disassociation and/or partial association between physical surroundings and perceptual experience mirrors the distributed perception engendered by ubiquitous mobile devices. In one particularly striking sequence from the film, an abstract, hallucinatory level of experience becomes associated both with drugs and, significantly, with a mobile phone and virtual static. A visual network of hallucinatory colour formations connects the pipe Oscar is smoking, the graphics on Oscar's phone and Oscar's brain. In the sequence, Oscar lights a pipe and we see this activity from his point-of-view with the camera placed at his eye level, looking out the window. The sign outside his window, which says "ENTER," dissolves gradually into a block of pure colour, linking colour to a removal or dislocation from the stable physicality of material surroundings. As Oscar lights the pipe, we hear unclear verbal ramblings in voice-over and see flickering coloured light over the room. Then the scene begins to alternate between cuts to black and flashes blurry

images as the pipe is lit. The camera then moves jerkily and we see the drug reacting inside the pipe in a red light, represented by black and red lines. The substance inside the pipe looks similar to the network of vessels inside a brain, suggesting that a similar process is taking place inside Oscar's head. Interestingly, these psychedelic images of networked lines complicate the traditional binary between abstract colour and line (Price 79) as these lines do not function to contain colour within a system of narrative order but rather interact with colour to produce abstractions that represent a subjective heightened consciousness. The formations further evoke digital, virtual networks that criss-cross and connect objects together, linking digitally networked space to subjective space. Briefly, we return to Oscar lying down smoking as the camera circles him from a high angle. The image is grainy and blurry, with shades of purple coloured light flashing from time to time. There are a couple of, almost subliminal, flashes of the psychedelic imagery, thus creating a form of subjective flickering. Oscar's body seems to dissolve into blurriness with the rapid spinning of the camera, before Noé cuts back to a series of multi-coloured, kaleidoscopic images inside the pipe/brain. Images of abstract formations of wavy lines spiralling out from the circular centre of the image (the lit pipe) and crossing like tentacles or vines appear in a succession of different colour schemes, resembling hallucinatory neon smoke. The circular motif matches the camera movement from earlier in the sequence and emphasises the sense of being caught up in a neon swirl. Some of these images are also accompanied also by flickering light, which indicates an overlap between the external environment, often characterised by flickering signs, and the mental state represented by these images. Throughout, it is ambiguous as to whether we are inside the object of the pipe or inside Oscar's mental state, or both. The pipe thus becomes an interface object that unleashes an explosion of coloured subjectivity both within Oscar's brain and within the cinematic space of the sequence. This coloured subjectivity nevertheless retains and reflects elements of the material world around Oscar, such as the flickering. In this way, the sequence emphasises partial dislocation and distributed perception.

During this sequence, we hear sounds that resemble radio static and digital computer noise as well as faintly heard conversations, linking the haze of drugs to the haze of mediation. We then hear Oscar's phone ringing before we see it. The psychedelic image shudders slightly as if Oscar's brain is rocked by a haptic vibration, once again suggesting fluidity between technological mediation and perception. Significantly, when we see the phone screen, it displays floating coloured bobbing images that closely resemble some of the kaleidoscopic images that the viewer has just experienced. The virtual world of fragmented phone conversation sounds and bobbing coloured icons visually blends into the hazy networked colour formations

associated with both the drug pipe and Oscar's altered brain activity; the phone and the pipe each act as transformative interfaces within a network of mediating colour.

Like the pipe, many coloured objects in the film appear to contain worlds of abstract colour and as the film goes on, the camera movement is increasingly drawn away from people and into these objects. Within the coloured objects we find a space defined by technology and mediation as pure abstract colour fills the screen. In *Enter the Void*, many different coloured realms seem to be contained within different objects in the real, material world, rather than a unified colour tint characterising the whole film. Although the film starts entirely in the embodied first-person perspective of Oscar and is contained by this perspective for roughly the first quarter of the film, after Oscar's death the camera seems to move at will through spaces and objects, creating a strong contrast to the opening sections. For example, in a scene in which Linda finds out that Oscar has been killed via a message left on her phone, we see her listening to the message and then the colour of the scene begins to flicker before becoming blurry as the camera tracks in on her crying on the couch. The camera then tracks out to show the room in natural colour, but with the flickering effect, before the room becomes over-exposed. At this point, the camera appears to leave Linda and moves instead towards the bright white/yellow lamp on the table. The camera continues to move towards the lamp and then goes into the lamp until the entire screen is filled with abstract colour (orange flashing with some yellow mixed in). From this object we move into a flashback recalling childhood memories. In many respects, this technique extends the use of "hotspots," which function "as the primary means of navigating from one scene or discursive level to another" that Marsha Kinder identifies in the work of Bunuel (8). Kinder conceptualises the hotspot or "fetishized detail within the shot" as functioning like an icon in a database that takes you to a different narrative realm (6-10) and indeed the lamp here does function in this way as it introduces a flashback, but something more complex is also taking place in this sequence. The object not only acts as one of the "interface devices" as described by Kinder (10), but seems to contain a perceptual experience of pure colour. The object thus not only functions as a narrative device, but holds a layer made entirely of abstract, non-material colour for the camera to explore within this ostensibly material lamp. The camera actually enters the object by moving towards it and then the screen is consumed by digital colour, suggesting a virtual or mediated perception outside of normal experience within the object. In this way, a virtual micro-world exists within a coloured object. The object does not act as a threshold in the same way as the phone boxes in *The Matrix* in the sense it does not transport a character across a fixed boundary point between ontological realms. Instead the camera is able to freely glide towards the lamp, suggesting a fluid mental wandering into this realm of abstraction that is contained within the object in the material world.

If objects contain virtual micro-worlds of colour, this colour also has a tendency to leach or bleed into environments, enveloping spaces and bodies. While the earlier sequence with the crack pipe featured imagery of networked lines and kaleidoscopic patterns, beams and patterns created by light similarly operate throughout the film to link people and places in a network of light and colour. As the entire environment is mediated by objects emitting neon lights, bodies become part of this mediated world. In the club scene, for example, we see Linda dancing almost naked on a bright, white raised stage from a high angle perspective with various coloured flashing strobe lights creating patterns and illuminating her body as she writhes on the stage. In a much later scene, the neon lights of the city of Tokyo and the human body become even more closely linked. During an act of sexual penetration, bright light appears to leach out of Linda's body when the man enters her. As she gives the man oral sex, his penis is illuminated with orange neon light, like orange tentacles. Whilst before, the patterns of light seemed to cover the body, it now also emanates from the male body and seems to spread out across her. The film therefore creates a sense of bodies becoming intertwined with the neon environment. Although *Enter The Void* is not explicitly concerned with mobile technology, it constructs an image of a city where technological mediation surrounds and overlaps with physical bodies in all settings. Colour in the film is therefore mobile, moving from object to building to person and engulfing everything in networks of colour. In this way, such integration is represented as potentially disempowering for bodies in general. More specifically, Linda's role as a stripper, who produces spectacle for male viewers, emphasises a connection between the female gendered body and this hyper-mediatised environment by incorporating her physicality into the seedy, neon imagery. This bodily absorption in a network of colour contrasts starkly with the sequences discussed later in this chapter from *Under The Skin* where the female perspective gains power from its transmutation into colour.

The element of networked colour contributes to the overall structuring principle of the network in *Enter The Void* as a whole. The film tells interconnected narratives about both of its central sibling protagonists, while using objects as interfaces to dart back and forth into the past and future, including illuminating flashbacks to the accident that killed their parents. In the scene where Linda finds out that Oscar has been killed, for example, the camera goes into the lamp and after a brief sequence of abstract colour, we see the first flashback to their childhood. The past and the present are not at separate points in a timeline but are connected and the film can jump between them across a chronological network of both memory and screen space. There is furthermore a strong sense that one action (the death of Oscar or the death of their parents for example) has effects on the lives and futures of those connected to him; thus every point of the network causes a change in other parts. For this reason, Noé frequently shows us simultaneous

action, especially between the two siblings who act almost as two parts of one whole. This simultaneity remains intact even after Oscar has died because the movement of Oscar's soul, as visually embodied by a gliding camera, follows Linda's forward-moving actions that drive the very loose narrative. Indeed even the way in which the camera frequently floats or glides from one character, situation or object to another in an almost constant movement suggests an energy connecting or flowing between different elements of the film's world. Wendy Everett has written of the importance of the network to contemporary narrative patterns, arguing that "there is little or no linear development, and stories and events instead form complex web-like structures" based upon "chaotic patterns of action and reaction, of chance and outcome" (167). Such narrative experimentation represents an "acknowledgement of the fact that we live in a 'connected world,' and that no single action… is without wider consequences" (167). Everett suggests that the formal template for these narrative networks is the "cyberspace hypertext" as multiple possibilities are present depending on a series of linked actions (167). She notes that the perfect setting for such networked narratives is of course the city as it "provides a neat framework or container in which to position a specific network and trace its dynamic evolution" (167). In *Enter The Void* networked lives and timescapes find expression in both networked narrative and networked visual patterns of colour and light that connect people, objects and spaces within an urban environment. The city becomes a web that unites and links not only stories but things, bodies and on-screen elements of colour and light as well.

The city imagery further offers the film a venue to visualise layered subjectivity. The gliding perspective in which we see a moving camera scanning across the city grid of Tokyo, representing Oscar's wandering soul, implies a mobile layer of subjectivity similar to the layering of colour formation over material environments. In this way, embodied movement, which characterises the first section of the film shot in first person, is replaced by a layered mobile subjectivity on the part of Oscar, while Linda's body remains enmeshed in the neon environment. Oscar's gaze often seems to be wandering aimlessly; it moves constantly and repetitively and is frequently unable to intervene in the events that it perceives, leaving him with limited agency. Oscar's layered subjectivity is thus extricated from his bodily presence and the siblings are separated by life and death, mirroring their earlier geographical separation in childhood after their parents' death, which we learn about in flashback. If the siblings can be considered to be part of one composite identity, this identity becomes distributed after Oscar's death between Oscar's disembodied subjectivity and Linda's body.

By contrast, in *Under The Skin* the alien protagonist is a composite of a human body and an alien consciousness that converges in one entity. Her power derives from her ability to channel both her subjectivity and her bodily presence into an abstraction that consumes men.

Jonathan Glazer's *Under The Skin* shares similarities with *Enter The Void* because it uses colours emanating from material objects and settings to open up abstract, and in this case very dangerous, alien spaces that similarly engulf human bodies, transgressing boundaries between the physical and the abstract. Glazer's film, however, affords its alien central character a greater control over the manipulation of the layers of space that appear to be called forth by her presence.

A Colour Invasion: Abstraction, Blackness and the Alien in *Under The Skin*

Jonathan Glazer's *Under The Skin* boldly mixes styles and genres to create a powerfully hypnotic film. The film's loose narrative follows an alien (Scarlett Johansson) who has taken on a seductive female form from a body found on the side of the road. In this way, she is a composite being, but one that unites a foreign body and subjectivity in a single entity. Defined by her dark hair, bright red lips and mysterious gaze, she drives around Glasgow seducing men. She lures these men into her car and drives them to locations often characterised by darkness. She then leads them into a dynamic liquid blackness, sometimes augmented by abstract colour swirls and formations, which consumes, and in some cases eviscerates, them. Glazer creates a "tension between these startling science-fiction interludes and the gritty realism of the rest of the film" (Osterweil 45). Shot with a concealed small camera, the encounters in the car are frequently unscripted and some of the participants were unaware that they were taking part in a film (46). These scenes are muted in their colour palettes and often grainy or full of shadows, in marked contrast to the sleek aesthetic of the seduction scenes. Colourist John Claude describes how important colour grading was to differentiate the realistic scenes from the science fiction set pieces: "The balance in the grade was naturalistic in the street cinematography, then more stylised as we took the viewer through some of the more curious, unsettling sequences" ("Baselight"). Despite this ontological differentiation between the naturalistic and 'science fiction' scenes, the colour abstractions featured in the evisceration sequences appear to originate both from material spaces and the embodied presence of the alien, rather than constituting a separate world or realm.

The use of digital and analogue colour effects in the film lends itself to an exploration of how the relationship between abstract, alien colour and mundane, material space in the film mirrors our own interaction with virtual space. As with coloured or lit objects containing micro-worlds of abstract colour and altered perception in *Enter The Void*, in *Under The Skin* Glazer has his camera track into dark or blackened spaces, which seem to contain the alien liquid blackness. This clean liquid blackness is clearly on a different ontological level to the grimy locations of Glasgow, but appears to emanate from the darkened spaces of real life. Furthermore,

this mediated abstract formation[13] both issues from a body (of the alien) and consumes bodies (of the men), thus representing the intertwining of the physical body of actors with a digitally-enhanced world characterised by active colour in a similar manner to *Enter The Void*, but with a greater attribution of agency to the alien. Once again spaces from within the material or ordinary world seem to integrate with or unleash abstract spaces defined by immaterial forces. Furthermore, the significance of the alien's (female-coded) body as a lure into spaces where abstract colour and blocks of liquid disembody and subsume men implies a powerful connection between unleashed feminine subjectivity and the malleability offered by an abstract realm; the extension of the alien's subjectivity into abstract space empowers her presence beyond the limitations of her feminine body.[14] The film also engages with mediated perception, as the ordinary world is refracted through the alien's foreign, unfamiliar gaze (Osterweil 46). In one particularly memorable sequence, Glazer links the alien's gaze, which is directed at humanity, to the ways that we mediate or refract our own experiences of life through technology (46). Colour plays an integral part in this exploration of mediated perception.

The opening sequence of the film associates the alien's arrival with both colour and technology. The film begins with a blank black screen. A tiny white, bright dot of light appears. We can make out a faint ring around the dot as it seems to be slowly getting closer to the camera. We then cut to a close-up, which reveals the dot emitting blue light. The light appears to get closer to the camera again as we move towards the bright white centre. We then see what appears to be a large black screw entering the blue ring, recalling sexual imagery of penetration. As in *Enter The Void* abstract colour and the body become linked together, suggesting a fusion of the organic and the mediated. A white outer ring compresses around a black inner ring, with a speck of white light inside the black circle. This set of circles morphs into a close-up of the alien's eye. Although the imagery in the pre-title sequence clearly signifies the act of conception, it also links the alien's presence with both abstract shapes and with technological machinery; her construction seems to involve what looks like mechanical parts and tools. Indeed Glazer has stated that the sequence is intended to resemble "the alignment of planets or the docking of

[13] Note that black is generally not considered a colour, but the blackness constitutes an abstract element that frequently interacts with other coloured abstractions.

[14] This theme connects both to Chapter Two's examination of the way that sound can complicate gendered subjectivity and enable subjective mastery of oppressive spaces, and to Chapter Five's analysis of *Her* and *Lucy*, which each explicitly link feminine multiplicity to virtual presence. In the case of both *Under The Skin* and the two films from Chapter Five, the 'alienness' of the female protagonists' bodies seem to provide a solution to the problem of bodily exploitation presented in Chapter Two.

spaceships" (Ashurst). She is an alien, but she is also a piece of technology and an instrument of colour and light.

It is unsurprising then that the alien lures her victims into worlds that seem inextricably linked with both blackness and symbolically with the virtual. Abstract disembodied colour formations engulf and erase the physical bodies of the men. The alien frequently leads these victims into dark or black spaces, such as doorways. The camera tracks into these spaces and they seem to contain a more dangerous and fluid darkness, which appears after the tracking shots. The alien strips down against a a pure block of blackness, beckoning the men to follow as she steps further into the black background. The black proceeds to swallow up the men until they are enveloped by it like people drowning in water. Visual effects specialists Tom Debenham and Dominic Parker explain that these sequences were created using a mixture of analogue effects, produced primarily by a tank of black liquid and a glass floor, and digital painting, thus producing an already hybrid environment ("Under the Skin: VFX"). In these sequences, blackness becomes active and hostile through the manipulation of visual effects. The blackness appears to come alive to swallow the men, connoting an unpredictable and threatening virtual environment that literally overpowers the human elements of the shot. The physical is thus subsumed by a menacing, but immaterial virtual force.

Although produced using a tank, this blackness generates various mediated associations. Tom Gunning notes that in cinema black "is the color of darkness, of night, of shadow, of nothingness or invisibility" and has a unique ability to "swallow or overwhelm other colours in darkness" within the film's colour scheme (88). Black literally erases other colours and other elements of a shot and thus "withholds both light and color and returns us to the darkness of the theatre, the condition of film projection" (88). In an interview with *Total Film*, director Jonathan Glazer reveals an awareness of such connotations. As the interviewer suggests, "she leads them into a space with a black reflective screen that could be a TV screen, or a computer screen, and you can get lost in that screen if you let yourself" (Ashurst n.p). Glazer himself replies that the blackness could also be celluloid film (ibid). The clean simplicity of the black background further suggests blank space, as if it is to be filled by computer-generated images in a film. Special effects and human bodies commingle, just as material and digitally-enhanced spatial elements interact with one another.

This virtual, mediated blackness appears to issue from darkness within physical and mundane spaces, once again mirroring the idea of pockets of virtual spaces emanating from objects or spaces embedded in the real world, and indeed often acts as a virtual version of the material space it emanates from. In one memorable sequence, the virtual screen-like space takes

on the colours of a club environment. The alien becomes swept up by a group of women who take her along with them to a dance club. Disorientated, she moves through the crowd of people dancing, while the strobe lights of the club flash. She eventually makes her way out into the hallway, which is bathed in a red, hazy light. She exits through a door and goes down some steps before eventually opening another door into a foyer area where people are drinking and chatting, also in the red light. She is approached by a man whom she had earlier seen on the road and after a brief conversation we cut to the dance floor where they dance together, again with flashes of bright light. After a high-angle wide shot of the darkened club, we cut to the man dancing against the familiar solid black background. The cut from people dancing in the dark to the man still dancing against the blackness draws a strong connection between the space of the club and this alien darkness. The camera tracks out to show the alien's clothes on the glass reflective surface and they both undress. She steps slowly backwards and he follows her, sinking steadily into the blackness. Unlike with previous similar sequences, in this instance the sequence continues after the alien walks away to show the man trapped beneath the surface level in the sea of blackness, floating. He sees another man whom the alien has earlier seduced and reaches out to hold his hand, but eventually lets go and the other man seems to float away before his body folds down into an abstract shape. After the man watches the eviscerated man float for a while, Glazer cuts to red, thick, gushing liquid pouring along what seems to be a path in the middle of the blackness toward a red, warm light. This image could potentially be a gutter full of blood to gather the waste from the victims, but it also resembles the red passageway that the alien previously entered in the club. Significantly, the bodies have been emptied of the blood and entrails that make up their physical matter and become themselves flat, almost two-dimensional images of men, while their blood becomes an abstract colour formation: the physical becomes a mediated, digitally-enhanced abstraction. We then see a close-up of various red abstract colour formations taking up the whole screen, before a shot of a red horizontal line against the black background. Finally we see flashing lights, mostly red until the screen becomes a shade of burnt orange with a pink flashing light containing a tiny black speck (presumably the man). The use of black and red and of flashing lights links this alien (and digitally-altered) space to the club, which is also characterised by blinding strobe lights and the prominence of red light against a dark background. It is as if the alien environment springs from—and is embedded within—the physical, material space of the club. An alternative realm that is created by an alien's perception of her environment and constructed using digital imagery seems to pour forth from within the material, mundane space of a grimy night club.

If colours emanate from spaces in the film, the alien's body itself also seems to act as a controlling interface at the centre of a network of objects and spaces connected by colour. Just

as digital networks connect multiple spaces, people and objects, colour connects the alien, the club and the virtual, liquid space that subsumes the men. Ara Osterweil argues that the film constitutes a transgressive vision of "female desire" and "an insatiable feminist point of view," showing that "for a woman to dare to look with desire radically transforms the everyday landscape and its power relations" (47). Scarlett Johansson's alien is defined visually by her black hair and bright red lipstick, which we see her applying. She is therefore coded with seductive colours that seem to spill out from her and into spaces that she inhabits. David Batchelor has argued that Western culture manifests an intense fear of colour, masking "a fear of contamination and corruption by something that is unknown or appears unknowable" (22). He labels this fear "chromophobia" and suggests that this underlying fear motivates an association between colour and "some 'foreign' body- usually the feminine, the oriental, the primitive, the infantile, the vulgar, the queer or the pathological" (22-23). He suggests that colour is often mistrusted because it is seen to be hiding or disguising something (52). This "cosmetic colour" is coded as feminine because it resembles makeup for women that can be used to make unattractive or unappealing flesh look beautiful, thus palying the role of "a supplement" as well as "potentially, a seduction" (52). In *Under The Skin,* the alien uses makeup to give herself a seductive, feminine human look that both hides her true alien nature and "dare[s] us to mistake her for a mere fetish object" (Osterweil 45). Similarly, her alien, foreign, dangerous powers are also associated with these same colours (black and red) as the men are literally subsumed and eviscerated by abstract black and red colour. She thus both lures them in and destroys them with colour. This dangerous colour becomes mobile as it flows through both her and the space of the club, infecting space with her foreign presence and perception. As Osterweil notes, in the prologue the alien takes the form of a female body found on the side of the road, who can be assumed to be the victim of some form of (sexual) violence (25). In becoming this unidentified woman's avenger (45), the alien transcends the traditional confines of gendered embodiment, whilst empowering this disenfranchised body and reviving it, giving it vibrant colour. The corpse is just another connected object within a network of flowing colour and desire. Thus bodies and environments become linked by colour that moves between them, with both the alien's adopted body and the coloured "hotspots" of the darkened rooms and the club becoming interfaces for mobile colour. This mobile colour becomes associated with the forceful presence of the alien's subjectivity.

Although *Under The Skin* never makes an explicit statement about technology or mobile media, one sequence in particular exemplifies the film's thematic preoccupation with "the expanded forms of perception and communication that are activated through the use of technological prostheses ubiquitous in the modern metropolis" (Osterweil 47). Near the end of

the film, Glazer includes a sequence in which the alien watches people going about their daily lives. Osterweil describes a sequence in which we see a series of shots of people performing quotidian activities, including many shots involving the use of technologies, laid over one another: "People, none particularly beauteous, wait for buses, mouth words into their cellphones, hover at ATMs, send texts" (46). In a yellow colour, the alien's face emerges in the centre of it as if superimposed over these activities. The yellow colour suggests the foreign perception of the alien, who watches us through her unfamiliar gaze. As Osterweil argues, Glazer's film "de-familiarizes its world" because the viewer is asked to experience it "through alien eyes" (46). The foreign, unfamiliar gaze of the alien mediates the images of the people, just as those people shown are mediating their experience of the world through their mobile phones and other technologies. The yellow of her face implies a gaze refracted through a tinted vision, just as we apply virtual, technological filters to our lives: "Perception transubstantiates: humans become machine, while the alien becomes increasingly human" (46). In this sense, the filter becomes an additional mediated layer of vision and interpretation in the same way that our own perception of our surroundings is augmented by multiple mediated objects, and that images are continually altered and augmented in the digital era.

Conclusion: Contemporary Media through a Coloured Lens

Pockets of digital space surround us in our daily lives. The digital and the material can no longer be divided into two separate spaces, two separate realms or two separate colour schemes. We are participants in technological networks that link us to our devices, to objects and to composite spaces. Although both Gaspar Noé and Jonathan Glazer are strong auteurs whose distinctive visions lend themselves to endlessly polysemous interpretations, a connection may be drawn between *Enter The Void* and *Under The Skin* as films that each use abstract colour to suggest levels of alternate perception embodied within material objects and/or spaces. They both use a combination of analogue and digital effects to imply hybrid environments where mediation, signified by light and colour, mingles and overlaps with human bodies, often with perilous consequences. Bodies, objects and environments act as interfaces for, and are connected by, networked colour. The two films present complex perspectives on the relationship between networked space and individual agency. In *Under The Skin* the interaction between composite spaces and the female-coded alien body increases her agency because both her bodily presence and subjectivity become powerful, mobile forces that extend beyond her into the surrounding environment and consume others. By contrast, in *Enter The Void*, Linda is often visualised as being subsumed by the mediated environment, while Oscar's perspective drifts over the city disassociated from his bodily presence. Thus integration into a mediated environment can both extend subjectivity and produce fragmentation and/or disassociation.

In addition to their textual qualities, *Enter The Void* and *Under The Skin* exemplify the potential uses of layered digital visual effects to participate in and engage with a digital culture that is similarly defined by layers of mediation upon material environments. Writing in 2003, Scott Higgins predicted that digital colour would move away from the notion of ostentatious colour that draws attention to its own technical construction and instead reflect "the basic mastery of narrative centring and underscoring taught by the restrained mode" (74). The restrained mode occurs when a new technology has surpassed "novelty-based demonstration films" and "can recede from attention" (69). Such a distinction between attention-grabbing effects and those that serve the story reflects a broad fear amongst film scholars that the ability to manipulate each individual aspect of a shot could lead to the production of what Jean-Pierre Geuens describes as "overly processed image enhancement [that] ultimately conveys a vaporous, glossy world that could inhibit viewers' emotional and mental engagement" (45). Neither of the films in this chapter could be said to fit into established narrative or aesthetic norms, yet colour is certainly not an unmotivated gimmick in either film. Higgins' distinctions and Geuens' anxieties thus seem too limited to encompass the role of digitally-altered colour in these films. In both films analysed in this chapter, the use of colour reflects not only the psychological states of the characters, but also parallels the relationship between the digital and the material in the contemporary media landscape. Colour is not merely an aesthetic strategy but a self-reflexive tool to establish a relationship between mediated subjectivity and physical reality. If neither film is about technological mediation per se, it is nonetheless difficult to view these films without contemplating the ever-shifting parameters connecting physical experience and digital space.

While this chapter has demonstrated how colour both envelops and appears to issue from bodies and spaces in *Enter The Void* and *Under The Skin*, Chapter Four turns its attention to a group of films that represent graphics as similarly embedded both in material spaces and the frame of the cinema screen, simulating textual and symbolic graphical interfaces that appear to move in response to the characters' bodies, the objects and environments of the films. Chapter Four will thus focus explicitly upon the negotiation between the composite subjectivities that digital interfaces enable on the one hand and the physical bodies that operate them on the other.

4. Graphical Interfaces, Cyborg Bodies and Haptic Space

Within audiovisual media, textual graphics are conventionally perceived to be less concrete than other audiovisual elements of the shot as they generally form an additional layer added onto the image to offer information or context, rather than playing an active role as a story element (Galloway 42). More broadly, text is typically regarded as immaterial because it possesses semiotic, rather than tactile, qualities deploying "an entirely different mode of signification, reliant more on letter and number, iconographic images rather than realistic representational images" (Galloway 42). Yet new media forms complicate these boundaries. In discussing video game graphics, for example, Alexander Galloway suggests that "the thin, two-dimensional overlay containing icons, text, progress bars, and numbers" is technically non-diegetic space, yet it is full of important information required to interpret the game world (42). In the films discussed in this chapter, graphics are similarly important to understanding and interpreting the properties of the digital landscapes presented, but they have a haptic presence in the diegetic world. Problematising the traditional associations between text and immateriality (Galloway 42), these films represent obvious computer graphics, defined here as text, symbols, icons and graphical interfaces and so on, as embedded and operating within physical, material spaces depicted on-screen, whilst also using visual means to give the impression that these aspects of text and graphical symbols interact with other audiovisual elements and/or are able to be touched and moved. Furthermore, the projection of the increasingly transparent threshold of the interface into the material landscape of the diegesis conflates embodied and virtual experience and emphasises a composite subjectivity shaped by both material and digital stimuli.

The majority of the chapter will focus on four films intricately concerned with mediated physical and mental spaces: *Scott Pilgrim vs The World* (2010), Edgar Wright's fantastical comedy about a young man, played by Michael Cera, who has to defeat his new love interest's seven evil ex-partners in a series of arcade game-like showdowns; *Men, Women & Children* (2014), Jason Reitman's multi-story drama about the perils of the Internet; online gaming thriller *Nerve* (Henry Joost and Ariel Schulman 2016); and Leo Gabriadze's innovative digital horror film that plays out on a computer screen, *Unfriended* (2014). It will argue that these films represent digital graphics as threaded through, and making contact with, material space and material bodies. In this way they present imaginative projections of contemporary relationships between the virtual and the material and between bodies and interfaces. The films collectively explore both fears and fantasies regarding the role of the digital in shaping composite subjective and phenomenological spaces where bodies and identities become hybridised.

These films employ synaesthetic effects that utilise one sense (that is, the visual image) to simulate other senses, such as touch, in order to present a space where the physical and the graphical overlap. In *Scott Pilgrim vs The World*, for example, characters walk in front of and block lettering and graphics on-screen as they would if they were actually physically next to them, while sounds and movements issuing from the material world of the film generate graphics that shake and stutter as if rocked by vibrations upon impact. In *Men, Women & Children* computer and mobile interfaces appear over characters' faces and material environments and appear to pop up, move across shots or scroll as if touched by invisible hands. Making bodily contact with graphical interfaces even more explicit, *Nerve* switches between the perspectives of the characters and live-streaming video recordings of the action in real-time on the characters' phones, with fingers appearing to operate haptic graphics overlaying the captured images. All three films thus utilise what Laura U. Marks has described as "haptic visuality," where a film implies the sense of touch or contact through visual means (131). Visual strategies imply that immaterial text is touching or interacting with more concrete aspects of the on-screen world.

The films thus construct the sense of a tactile space intertwined with elements of the virtual, defined for the purposes of this chapter as elements of computer graphics generally thought of as constituting or issuing from an immaterial digital space. This spatial hybridity parallels and extends the increasingly common integration of technological interfaces in physical spaces and objects in ubiquitous computing, as well as the haptic effects in gaming technologies. In the Nintendo Wii system, for example, a physical movement of one's body, such as waving an arm or punching into the air, creates an effect for one's bodily avatar in the game, while even the handheld controllers used by more traditional gaming consoles require rapid finger movements that dictate the actions of your avatar. Furthermore the on-screen scrolling movement of graphical elements and moments of contact between the graphical interface and other audiovisual elements in these films create an illusion of "touching" the virtual graphics that resonates with the now standard use of touch-screen interfaces in mobile phones and tablets. In this way, the films depict a haptic hybrid of virtual and material space that parallels the contemporary experience of digital media, as well as heightening this experience and, especially in the case of *Scott Pilgrim vs The World*, projecting the relationship between the material and the virtual into a fantastical mediascape.

Yet even as certain aspects of digital culture embrace haptic effects, paradoxically the body is also rendered less visible as technologies become so indispensable to us that the barriers between ourselves and our devices disappear. While we can operate interfaces with our fingers, for example, we eventually begin to see these interfaces as an extension of our hands, or,

perversely, our hands as an extension of the interface. In this sense, we become like a cyborg entity. A cyborg, as theorised by Donna Haraway is "a cybernetic organism, a hybrid of machine and organism" (225).The four films discussed in this chapter explore cyborg-like manifestations, but, unlike Haraway's notion of the cyborg as a socially progressive and empowering figure,[15] they represent a range of often pessimistic perspectives in which the body is subsumed by the interfaces that it makes contact with, producing a consequent lack of agency on the part of the user. These films envisage composite spaces in which subjectivities are not located only in the body and its perception of the surrounding world, but are instead shaped by the ubiquitous digital presence of, and interaction with, others. In this way, subjectivities are produced by the interaction or negotiation between distributed human and mediated elements in a process described by Anahid Kassabian in relation to musical media (*Ubiquitous Listening* xxv).[16] The films draw a visual connection between such a "distributed subjectivity" (xxv) and the seamless integration of graphical elements into both the characters' diegetic environment and the cinematic frame. Co-presence in digital and material spaces has the potential both to extend one's presence as an individual and to dilute individual subjectivity. In the most positive and light-hearted of the films and the first discussed, *Scott Pilgrim vs The World*, the virtual, graphical elements of the film aid Scott (for example, when he gains a form of self-knowledge or awareness, this is represented by the symbol of a sword that he can use in battle) and he is able to physically wield graphics as weapons. Significantly, many of the virtual elements therefore become extensions of Scott's body and of Scott's individual subjectivity. In *Men, Women & Children*, by contrast, virtual data moves across the screen as if moved by invisible hands, but the hands are just that: invisible. Just as the body becomes effaced, so too does the sense of control over the virtual world. Furthermore, the decision not to show the characters' hands emphasises their lack of agency over their own minds and bodies. In this film, the virtual, and the influence of virtually present others, often has negative bodily and mental effects on the characters. For example, a young woman develops an eating disorder as a result of websites that glorify unnaturally thin bodies, while other characters are unable to interact sexually with their partners due to the psychological effects of pornography. The third film analysed, *Nerve*, develops this theme of decreasing agency through its depiction of a character who willingly offers her body as voyeuristic object for a group of 'watchers.' These watchers control her by presenting her with dares to be carried out often at great physical risk. Haptic graphics highlight the gaze and immaterial, yet interactive, presence of the watchers, as well as points of contact between the online/recorded and material body. I compare this film's utilisation of graphics to

[15] This conception of the cyborg will be explored in relation to gender in Chapter Five.
[16] See Chapter Two for a fuller explanation of this theory.

depict willing participation in a voyeuristic self-recording game to 2009's *Gamer* (Mark Neveldine and Brian Taylor), which addresses vicarious experience through the metaphor of human avatars, in order to illustrate the similarities and differences in the representation of the body's place in, and interaction with, gamespace.

The final film discussed represents the culmination of the chapter's analysis of the rhetorical and aesthetic link between increasing integration of the graphical interface into the cinematic frame and bodily disenfranchisement. In *Unfriended* (Leo Gabriadze, 2014) cinematic space becomes entirely synonymous with the computer interface and the viewer is placed in the position of a computer user. The horror film's entire running length is depicted through shots of the activity on the computer screen of Blaire (Shelley Hennig) as she and a group of her friends interact via Skype and Facebook with the ghost of their dead friend, who has committed suicide after an embarrassing video of her lying drunk and soiled had been posted online. The film completely places the viewer in the embodied position of Blaire as her mouse hovers and creates suspense while she types then erases messages, thus replicating a sense of inhabiting Blaire's physical presence. Increasingly, however, the haunted interface begins to take control, typing words and posting content that Blaire and her friends did not generate. By the end of the film, the ghost has used the interface to kill all of the characters. Ironically, technologies that are intended to be used for self-representation and personal communication (Facebook and Skype, for example) are used to attack and erase the physical presence of the user, replacing them with an empty virtual presence controlled by a dead, disembodied girl.

Spatial Montage, Computer Graphics and Hypermediated Screens

Before examining the specific qualities and spatial projections of the core films analysed by this chapter, it is worth noting a wider trend in contemporary film in which the principles of spatial montage characteristic of the computer are "becoming normative methods in cinema" (Kallay 68). In her examination of the far-reaching effect of video games on contemporary cinema, Jasmina Kallay argues that the visual influence of digital new media forms can be found in cinema's "application of multiple screens and windows" (8). Kallay mentions a wider cultural tendency towards hypermediacy, which "multiplies the signs of mediation" (Bolter and Grusin 34). Perhaps the most pertinent example of this phenomenon can be found in "the multiplicity of windowed viewpoints" offered by the Internet on a computer screen (Palmer 6). Kallay extends this structural logic to the video game, suggesting that the

> hypermediated computer screen…has informed the hypermediated visual language of the computer game: within the frame of the computer screen, the gamer is accustomed

> to following several different windows/boxes, such as monitoring progress on a map of the gameworld, or the vital stats bars, to controlling their avatar's movements (68).

This hypermediated literacy drawn from digital culture has in turn profoundly altered "the way we relate to the cinematic image" (68).

The hypermediated cinematic image is enabled by computer imaging, which has allowed for the creation of "a digitally composed image" that "can be seen as a continuation of montage within the shot" (Manovich *The Language of New Media* 152). Traditionally, narrative visual media such as film and television used "temporal montage," that is the juxtaposition of two separate shots, to "simulate a single space" (155). In digital imaging, however, "elements are not juxtaposed but blended" (155). Thus, in the place of temporal montage, "computer technology privileges spatial dimensions" and "the digital moving image becomes a part of audio-visual-spatial culture" (157). Manovich claims that digital compositing represents a significant departure from previous examples of "visual simulation" due to the unprecedented degree of interaction between so-called 'real' and computer-generated elements within a mediated space that is open to exploration by the camera: "regardless of the particular combination of live-action elements and computer-generated elements that make up the composited shot, the camera can pan, zoom, and dolly through it" (153). He goes on to explain that such technologies have therefore led to the ascension of new types of montage (155). Within these new technological parameters "digital filmmakers can create… spatial montage" by juxtaposing different elements either seamlessly or in such a way as to emphasise the boundaries and barriers between elements for effect (158). This tendency towards spatial montage develops into two subcategories for Manovich: "stylistic montage," which combines different forms of media and "ontological montage," which is defined as "the coexistence of ontologically incompatible elements within the same time and space" (158-159). As Manovich explains, therefore, a film that juxtaposes two different locations or time periods in one shot via split-screens would be an example of ontological montage, while a film that combines different kinds of footage to represent a continuous temporality and/or cohesive environment (he gives the example of Robert Zemeckis' integration of sourced and recreated footage in 1994's *Forrest Gump*) represents stylistic montage (158-159). The films discussed in this chapter unquestionably engage in stylistic montage and arguably ontological montage by combining the virtual with the physical.

Stylistic montage can be utilised effectively in an attempt to convey a character's way of seeing the world. Kallay analyses *Ben X* (Nick Balthazar 2007), which centres upon a bullied, autistic teen who refracts his life through the video game universe that gives him an escape from

his ordinary reality. In this film, the video game elements are not merely a postmodern visual motif but instead "provide a window into Ben's mood and his state of mind" (69). For example, "vital stats bars…are here indicators of Ben's obsessive compulsive nature" (69-70). If *Ben X* uses video game graphics to represent an internal world, Kallay argues that *Scott Pilgrim vs The World* uses similar methods to emphasise "the main characters' cultural reference points and perspectives" (70). She describes the way in which *Scott Pilgrim vs The World* utilises gaming elements such as visual representations of points scored during fights and status bars showing Scott's energy and power levels, as well as the comic book technique of having onomatopoeic words appear on screen upon moments of impact (70). She further notes the influence of the computer interface on the film in sequences such as when Scott shows the audience his living space and "the many items in the room are highlighted as though a mouse is moving over them, prompting a textual explanation" and thus making the objects appear almost as "clickable" icons (70). Kallay does not explore the haptic qualities of such a representation of space in any detail, however, and instead observes that the film utilises stylistic montage as "an additional layer to the kind of shorthand ironic way in which the characters communicate" (70). Similarly, Amanda McQueen notes that sound in this film functions to appeal to its characters' and audience's media literacy (160). She gives the example of "the Mac trash sound," which director Edgar Wright employs when Scott makes a mistake or does something incorrect, assuming that the audience will understand that the sound signifies an error (160). Without disputing the appeal to pop cultural knowledge inherent in the film, this chapter will analyse the film's use of computer graphics, especially text, from a different perspective. I will focus on the ways in which the film can be considered to problematize distinctions between immaterial text and material spaces by presenting graphics as embedded within, rather than layered over, material spaces, and as making contact with and reacting to other elements of audiovisual space.

The thematically unsophisticated but visually inventive *Crank* (Mark Neveldine and Brian Taylor, 2006) provides an antecendent to *Scott Pilgrim vs The World* and represents an equally important example of both spatial and stylistic montage (Kallay 82). *Crank* features a collage of different techniques derived from various media, producing an overall "digital aesthetic that combines split screens, black-and-white surveillance-style footage, still photography, animated inserts, title graphics, video-game compositions, freeze frames" and so on (Palmer 2). The film centres upon a man named Chev Chelios (Jason Statham), who has been injected with a poison that will kill him if he does not maintain a certain level of adrenaline. The pacing and structure of the film resembles a video game because the protagonist must keep moving and running at a fast pace in order to survive. Indeed the character recalls a video game avatar in that his main narrative purpose is simply to keep himself alive throughout the film.

The visual depiction of Chev reinforces this notion of him being an avatar for himself as he is often shown multiple times in one shot in different situations or locations via split screens, thus producing "a male protagonist who can be multiplied and extended, as if he were the controlling apparatus that proliferates his own image" (Palmer 14). The film makes further explicit references to the visual features of a video game: it begins with low-resolution graphics followed by computer code, while the opening introduction to the character of Chev is shot in first-person perspective referencing the frequent use of the technique in first-person shooter games. The film frequently employs the technique of introducing a scene with a shot of a map of a city grid (complete with a copyright stamp at the bottom of the image as if found from an online image search) accompanied by a label pointing out a key location such as 'Carlito's Penthouse' thus alluding to the use of maps in some video games, which Kallay notes can function to orient the player and give them a sense of the space they are exploring (66). Furthermore, the film often shows us a graphical representation of Chev's internal organs, which function somewhat like status bars giving us an update on the character's health and wellbeing.

In one sequence *Crank* explores the interaction between material and virtual space in a manner that prefigures many of the techniques discussed further in this chapter. As Chev runs through the corridors behind a store, he has a phone conversation with his doctor. Instead of cutting back and forth between the doctor and Chev, the doctor's face instead appears projected on the wall. As Kallay notes, this sequence explores the increasing conflation of "technology and the environment" as a result of ubiquitous computing (83). Thomas Elsaesser argues that as technology develops, we will increasingly interact with the virtual not through the interface of a computer or television screen but rather interfaces will be modelled on "our primary perceptual organs and senses, that is: sight, hearing and touch" (cited in Kallay 83). This sense of an interface that operates via touch and is not contained within a screen is pushed even further in *Scott Pilgrim vs The World, Men, Women & Children* and *Nerve*. In order to explore the idea of a virtual world that makes contact with elements of material space on-screen, we must briefly explore cinema's ability to depict haptic space.

Haptic Space and Film

Although traditionally thought of as an optical medium, Kevin McHugh argues that cinema is far from "purely optical" but rather operates by "entangling senses across the sensorium in what is called haptic perception, and, by extension, haptic cinema" (839). This address to multi-sensory perception supports a phenomenological conceptualisation of cinema in which viewers vicariously inhabit "the perceptive experience" of an other depicted on screen (Sobchack *Address of the Eye* 9). When we watch a film, we are traditionally stationary and view the characters with our eyes, but we are also implicated in a mediated performance of experience

that we perceive with our bodies (10-11). Watching a film thus enables us to "see the seeing as well as the seen, hear the hearing as well as the heard, and feel the movement as well as see the moved" (10). In the act of viewing the film, we access both direct experience of the film and mediated experience of what the film depicts (10).

If we accept that cinema represents perceptual experience through vision, it thus has the capability to possess "haptic visuality" whereby "vision itself can be tactile, as though one were touching a film with one's eyes" (Marks xi). Although Marks is interested in non-mainstream intercultural cinema and video work, she makes the useful observation that cinema can approximate the sense of touch or of contact with elements depicted on screen not through gimmicks such as rocking the seats in the cinema auditorium but through visual techniques that "evoke these other senses" (131). Marks describes an example from Shauna Heharry's experimental video tape *Seeing Is Believing* where the camera follows the folds of a woman's sari in a still image "as they dissolve into grain and resolve again, " producing the illusion that the viewer has been brushing against the fabric rather than simply gazing at it (127). Marks suggests that the sense of touch can be conveyed using various means on both celluloid and video even without depicting hands on screen (171-172). These include the creation of "sensuous effects" through camera movement and montage; the use of over or under exposure, changes in focus and graininess to portray texture and the degradation or scratching of video/film to emphasise the materiality of the medium (172-173). There are several examples not only in experimental video, but in modernist cinema. One could consider, for example, the opening sequence of *Hiroshima, Mon Amour* (Alain Resnais, 1959) in which a moving camera lingering over artefacts from the disaster emphasises the texture of the items to express their haptic affect in visual terms. Similarly addressing the communication of experience via touch and mediation, Ingmar Bergman's *Persona* simulates touching a screen in an early sequence in which a young boy awakens after appearing to be dead, perhaps referring to cinema's power to animate again, and puts his hand out, almost touching the frame. Then we see him from behind, over his shoulder, as he touches a face of a woman on screen. As he touches the face it goes in and out of focus, at times becoming completely white light. This shift in focus implies the sense of touch as if he is exploring the face with his hands and can only see it when he is feeling it. Later in the film, the celluloid appears to burn up, emphasising the destruction of the medium, shortly after a character steps on a shard of glass and cuts her foot, thus drawing a link between the skin and celluloid. Philipp Schmerheim elaborates on the distinction between such visual effects and actual synaesthesia, explaining that cinema can create multisensory experiences via two means: either by directly addressing another sense, such as the technique of Smell-O-Vision where odours were actually injected into cinemas, or by using "imagery, sound and montages

of conventional films in such ways as to create the illusion that the missing senses are affected as well" (115). Through these "indirect synaesthetic strategies" a film can produce "actual sensory perceptions that can test the established boundaries between the senses" (116). The next three sections will examine how *Scott Pilgrim vs The World*, *Men, Women & Children* and *Nerve* approximate the sense of touch in order to depict material engagement with virtual elements—text and graphics—that would conventionally belong to the realm of the symbolic rather than the material. In these films, haptic cinema is also used to examine mediated experience, but in the era of social media and the smart phone. The films actively foreground the visual, graphical language of digital new media, thus highlighting their own position within contemporary digital culture. Two factors make their aesthetic strategy different, although connected, to a film like *Persona* or earlier uses of haptic effects: firstly the simulation of the movement of a hand (previously often approximated via the movement of the camera over an object or in close-up to show texture) finds a representation in the form of graphics, directly linking this hapticity to digital elements and to a graphical vocabulary of touch; secondly, elements from a different ontological plane (i.e. digital elements) are integrated into a material, haptic space. The audience is not feeling texture through hapticity; instead these films simulate a collision between digital and material/human elements in an integrated, embodied world. Thus, hapticity is not new in cinema but digital hapticity uses this quality to produce something uncannily relevant to today's mediated experience where technologies are increasingly embodied, touched and interwoven in physical objects and settings. In *Scott Pilgrim vs The World*, sounds and movements in the physical world of the film produce virtual graphical effects creating the illusion of contact and collision, while in both *Men, Women & Children* and *Nerve* digital communications and pieces of data move across and down the frame as if to imply the character's physical manipulation of this data via seamless interfaces that transcend screens with set boundaries. The sense in these films that elements of virtual space are both embedded within material environments and touchable mirrors Elsaesser's concept of a progressively more "transparent" interface (quoted in Kallay 83). Increasingly, the barriers between the virtual and our bodies are being removed in digital culture as we operate devices with touch screens, control video game simulations with the movement of our limbs and carry around objects such as mobile phones that have become so ever-present as to be regarded as an extension of our selves. Similarly, the cinematic screen has become a space where traditionally immaterial elements such as computer graphics are no longer separated from, but rather interact with, other physical aspects of the shot in forms of spatial montage (Manovich 153-158). The films analysed in the following three sections depict haptic mediated spaces, where moving virtual elements interact with and touch bodies and environments.

Cinema One Level Up: Points of Graphical Contact in *Scott Pilgrim vs The World*

Scott Pilgrim vs The World has a rather uncomplicated narrative, but the cluttered screen paints a different picture of a densely mediated space rich in detail and in-jokes. Scott (Michael Cera) is a bass-player in an indie band in his early twenties and dating a doting high school girl, Knives Chau (Ellen Wong), with whom he spends his days playing arcade games. At a party, he comes across a free-spirited, mysterious young woman named Ramona Flowers (Mary Elizabeth Winstead) and is instantly attracted to her. He pursues Ramona romantically, but eventually realises that before he can be her boyfriend, he must defeat her seven ex-partners who appear unexpectedly to fight him in arcade-style combat. For the rest of the film, Scott battles the exes as his band gets ready to play in the Battle of the Bands.

The film utilises many of the same techniques already discussed earlier in the chapter. Like *Crank*, it opens with an explicit reference to the influence of gaming with the Universal symbol appearing pixelated and accompanied by a low definition arcade game sound. As in other examples of spatial montage, the video game graphics often give us information about characters' thoughts and brain activity; when Scott has moments of self-discovery or revelation he gains "power ups" such as "the power of love," which manifests as a sword that appears from his chest as "Level up" pops up on the side of the screen, while his development from having "no clue" to "gets it" is revealed using an arrow on a dial. Labels in graphical form help identify characters and places and status bars appear suddenly on the screen, such as a speedometer as Ramona's Hollywood action star ex Lucas Lee (Chris Evans) skateboards down a rail, or during more comical situations, such as a "pee bar" that decreases in the background as Scott urinates in the foreground.

Unlike in the other films, however, Scott actually walks past the graphical device, in this case a "pee bar," to get to the toilet in the foreground, thus integrating graphics as spatial objects. Rather than this graphical segment appearing as a flat element on screen in the foreground as it would in an actual computer screen or video game, the depth of the image makes the status bar appear as part of the space of the bathroom, towards the back of the screen and embedded in the material environment. This sense of depth contrasts with Sobchack's description of science fiction films from the late 1970s and 1980s concerned with technology, which, she argues, reflected a contemporary "deflation of space" by emphasizing "a new and highly privileged surface topography" (*Screening Space* 255). Sobchack notes an increase in pervasive electronic technology, causing us to experience and conceptualise space less as three-dimensional than as "flattened by the superficial electronic "dimensionality" of movement experienced occurring on—not in—the screens of computer terminals, video games, music videos and movies" (230-231). She examines the projection of such a surface-level spatiality in *TRON* (Steven Lisberger

1982), which represents spaces and even human beings as two-dimensional data within "the conceptual space of video games and computers" (257). She further notes that this two-dimensional electronic space in *TRON* is almost "absolute," subsuming or replacing material existence (257). *Scott Pilgrim vs The World,* on the other hand, seems to work against such a conceptualisation of an absolute simulated, de-materialised virtual space separated from materiality. It is the film's sense of graphics as interactive virtual objects which can make contact with material objects, people and spaces that resonates with actual contemporary experience of embodied mediated space in the age of mobile ubiquitous media, while at the same time presenting an imaginative or heightened projection of these spatial relationships.

Frequently characters will block or walk in front of elements of digital graphics, further implying an integration of the virtual in the form of text, which as previously noted is usually considered to be immaterial, within the three-dimensional material world. Notably, however, bodies and material elements are not replaced by these textual elements, but instead interact with them on the same plane. For example, when Scott first sees Ramona, a graphic reading "this one girl…" appears on the screen to the left of Ramona. As Scott approaches her, he slides in front of the graphics, which disappear. It is almost as though he has 'swiped away' the graphics with his body. The physical and the virtual interact with each other in a hybrid space where the borders implied by screens are almost non-existent; instead, the body directly touches virtual, mediated additions to the material space. In fact, screens are very seldom depicted in the film. In one of the few times that we see a computer screen, Scott reads an email from Ramona's first evil ex-boyfriend Matthew Patel (Satya Bhabha) announcing their up-coming "duel to the death." Since it is in the form of an immaterial email that can be easily deleted, however, Scott ignores the threat, describing it as "boring." The virtual threat can be dismissed without effort when on a small computer screen, but the film literally brings mediated space to life so that it intrudes upon the physical in the same way that Matthew Patel becomes a real threat when he appears to fight Scott. The characters do not remark upon the virtual elements that they walk around and in front of; they are in fact as ubiquitous as the mobile phones and other devices scattered throughout our lives and environments. In this way the film presents a fantastical projection extending current technological contexts but depicts this fantasy with the same matter-of-fact acceptance that now accompanies the once wondrous technologies of smart phones and iPods.

Perhaps the most obvious moments of contact between virtual graphics and material objects/sounds feature onomatopoeic words that appear on-screen as a motif throughout the film. The film is based on a series of graphic novels written by Bryan Lee O'Malley and thus this device is, on the surface an obvious nod, to the comic book origin of the film as the words

appear in a font typical of "the large letters accompanying accentuated sounds" in comics (Kallay 70). In concert with the other uses of graphics interacting with material spaces, however, they also contribute to the creation of synaesthetic effects and production of haptic space. When we hear a sound in the film, we not only see the onomatopoeic words appearing on screen as a visual representation of sound, but they also shudder as if actually rocked by the sonic vibrations. For example, when Scott picks up Knives from school, we hear and see the material school bell ring and then "Brrr!" appears on screen as if issuing from the bell in ascending, shuddering letters. In another sequence, as Scott and his band perform in a garage, the word 'Yeah' seems to come off the instruments and actually pulsates as if bouncing on top of the image. Similar effects indicate the collision of fists and bodies during the fight scenes, thus using the pulsation of the words to imply impact. This utilisation of visual shuddering to simulate the impact of sound and movement replicates the dynamics of forms of digital culture that utilise haptic effects. When playing games using a console, for example, explosions and collisions displayed on screen are often accompanied by vibrations in the controller, using the sense of touch to enhance the immersive experience of what is seen on-screen in the game world. *Scott Pilgrim vs The World* approximates this relationship between touch and vision from game consoles, but inverts it so that the illusion of vibration created through visual means creates a feeling of impact. In this way, *Scott Pilgrim vs The World* emphasises integration and contact between physical and virtual elements, but nevertheless retains a hierarchy where bodily movements have primacy and frequently direct or produce the virtual through these points of contact. The utilisation of visual effects and graphics to produce haptic space is treated differently in *Men, Women & Children,* which simulates the control of digital interfaces with our hands through superimposing a moving interface over images of material space, but frequently erases the bodily presence of those hands.

Scrolling Shots and Cyborg Cursors: Subjectivity and Composite Space in *Men, Women & Children*

Jason Reitman's *Men, Women & Children* takes the Internet and its effect upon our lives as its subject matter. It tells a number of interlocking stories about people whose lives have been impacted, mostly negatively, by online culture. In one story, husband and wife Don and Helen (Adam Sandler and Rosemarie DeWitt) each use the Internet to seek out extramarital sex through an escort service and a website for married people seeking affairs respectively. Meanwhile, their son Chris (Travis Tope) has become so accustomed to watching extreme sexual scenarios in online porn that he is unable to become aroused by standard sexual practices when he embarks upon a potential relationship with aspiring model Hannah (Olivia Crocicchia). Hannah's mother Donna (Judy Greer) has been posting inappropriate photos of her daughter in

revealing outfits and lingerie online and selling them to users. The other stories include that of a teenager named Brandy (Kaitlyn Dever) who shows kindness to a damaged young man Tim (Ansel Elgort), who has buried himself in an online multi-player game after his mother left the family. Brandy must hide her conversations from her paranoid mother Patricia (Jennifer Garner) who monitors all of her social media and text interactions and tracks her daughter digitally everywhere she goes. Finally, Allison (Elena Kampouris) utilises a website called prettybitchesnevereat.com to support the maintenance of her eating disorder until the anorexic teen eventually suffers a miscarriage as a result of continued malnutrition.

The film's stylistic motifs and extensive use of graphics allow Reitman to unite these stories through a visual exploration of the ubiquity of virtual forms of contact that transcends the extreme narrative content by depicting an integration of technological communication within daily life. In the film, digital photos, texts, on-screen drop-down menus and so on appear layered over images of the material world and move as if operated by the hands of the characters. We see almost no screens and no hands; instead the interface simply operates with invisible controls, thus suggesting an autonomous virtual world that spreads beyond the control of its users, often with disastrous consequences. The film's visual style therefore reflects the technological context described by Galloway when he observes that "reflective surfaces have been overthrown by transparent thresholds" (25). Galloway notes that increasingly an interface is considered most successful when it becomes so intuitive and naturalised as to render itself invisible (25). Accordingly *Men, Women & Children* renders the frames of the screens of the devices used by the characters invisible to show visual graphical elements moving through the world. Yet, even as the film approximates the control of data by mice, touch-screen controls and so on in its moving textual graphics, dropdown menus and cursors, it also obscures the actual hands that would be operating these systems. The film thus differs from *Scott Pilgrim vs the World* in that it not only blends virtual and material space expertly, but also visually embodies the now well-known observation that mobile phone and other devices have become so much a part of our lives that we cease to be aware of their presence as devices but rather see them as an extension of both our bodies and our consciousness. Cyborgs[17] in cinema are generally conjured by fantastical images of organic/robotic hybrids from science fiction films such as *The Terminator* (James Cameron, 1984) or *RoboCop* (Paul Verhoeven, 1987), yet Chris Hables Gray argues that all technology-users are cyborgs to a certain extent because our lives are "intimately shaped by machines. Some of them we merge with almost unconsciously, such as the car we drive, the computer we work with, or the television we zone out in front of. Others involve more conscious

[17] The cyborg will be addressed in more detail in Chapter Five, where I examine computers and computerised worlds more directly.

interfacing" (2-3). This idea of unconscious merging shapes the visual style of *Men, Women & Children.* Furthermore, the film shows the impact of other users, represented through graphics depicting virtual interactions, on individual subjectivity.

The film frequently uses a compositional device of positioning a character's face on one side of the frame while their digital activity (scrolling images, menus, icons and so on) appears superimposed over the other side of the frame. In this way, the mise-en-screen becomes integrated into the cinematic frame. Importantly, the digital content is constantly mobile as if the character is touching an interface. The audience thus sees the character from a third person perspective on one side of the screen, while experiencing their digital activity from a first-person perspective on the other. This device replicates the phenomena of touch and movement, thus alluding again to the prominence of the haptic in our digital interactions. Paradoxically, however, it also implies a direct link between virtual activity and the subjectivity of the characters whose faces we see, precisely because neither the screen nor the hands are shown; it is as if thoughts translate directly into virtual data with no barriers separating them in a process of cyborg consciousness. In this way, the interface, although operated by touch and movement, actually obscures the physical body. This psychological link is especially prominent, for example, in a sequence in which Allison turns to the Internet to help her resist eating a piece of shepherd's pie that her father (JK Simmons) has left in her room for her. Initially we see Allison sitting at her computer scrolling on the right side of the screen, while the images of anorexic girls move downwards on the left. After she is given the pie, she types into a chat box that she needs tips on how to stop herself from eating it and the messages from the other girls, including suggestions such as eating it and throwing up or smelling it while eating celery, pop up one by one on the right side of the frame next to her face, which is on the left. The spatial organisation of the scene and the movement of the graphics thus demonstrate the way in which her thought process is affected by the website and its users to the detriment of her physical body. In another scene, Don fills out an order form for an escort using a dropdown menu, which asks him to select the physical characteristics of the girl he wishes to purchase the services of, including her ethnicity, age, shape of her breasts and whether she shaves her genital area. Initially we see him on the right, with the whole dropdown menu on the left as the arrow pointer representing the mouse clicks. As the scene goes on, we continue with this dynamic but we see only the box for the particular category on which he is currently deciding, while he considers each one. The scene emphasises his emotional detachment from the process and the objectification of the woman as sexual product through highlighting each of the categories of preference individually. One final example demonstrates the complexity of the integration of the interface into the film's visual dynamics. A scene early in the film depicts Donna uploading photos of her daughter to her

website in two linked shots that together show the movement of files across space. In the first shot we see the photo files in a computer file explorer window on the left side of the screen with Donna sitting on the right side of the frame. In the next shot, Donna is positioned on the left side of the frame as highlighted photo files, which she is clearly dragging with a mouse out of frame, move across her face and torso to be dropped into another file window on the right side of the frame. The editing and graphics thus simulate the "drag and drop" function on a computer and through the use of a graphical movement across two shots gives the audience the illusion of physical motion. The lack of depiction of Donna's actual hands here helps to show the computer as an extension of her body, but also her abdication of personal guilt during the process; she does not take responsibility for her harmful actions to her daughter until much later in the film and at this point is able to disassociate herself from what she is doing, just as her hands are here not present. It is as if the computer itself is autonomous. In each of these sequences, the body and consciousness of the user becomes fused with the technological activity they undertake and the tools they use, which ultimately allows them to dislocate themselves from their bodies and from responsibility for what they do.

Just as subjectivity and interface become fused, so too do virtual and material spaces. Text messages and other pieces of data literally pop onto the screen over shots of characters going about their lives, implying that the characters are present in two spaces, one physical and one electronic. Indeed this technique has become commonplace in contemporary films more generally, ranging from comedies like *Friends With Benefits* (Will Gluck, 2011) and *Chef* (Jon Favreau, 2014) to intense dramas such as *Trust* (David Schwimmer, 2010): characters are seldom shown reading a message on a screen or even looking at a phone anymore, but rather this message will simply appear on-screen around the character as if it is an additional element in their spatial environment. *Men, Women & Children* uses this method in a sophisticated manner, varying the text boxes and bubbles to represent different operating systems and including time stamps and icons that indicate a message is in the process of being sent. In this way, the film shows a network of ubiquitous connectivity that is made up of diverse operating systems and interfaces. The film uses text bubbles to depict conversations that are incongruent with the surrounding material world, thus emphasising the complex mix of communications that we engage in: "sometimes we are communicating online, sometimes offline, and sometimes at an intersection of the two" (Farquhar 447). In one sequence, for example, Hannah engages in a graphic 'sexting' exchange with Chris, whilst walking around the mall talking to her mother; the explicit messages appearing on-screen around her (both as she types and sends/receives messages) contrast with her trivial activity and visually apparent lack of arousal by the conversation. The film conveys private virtual worlds within public spaces in a different but

equally striking manner in two stunning sequences featuring images of high school students, one in the school hallways and another in the cafeteria, with the activity that is taking place on their mobile devices appearing above them as thumbnails. This digital activity is again moving within the thumbnails as students scroll down through pictures on newsfeeds, watch videos and type into messages and search bars and so on. This motion adds to the impression that the virtual world is as, or perhaps more, 'alive,' active and vivid than the surrounding material environment of the school as well as once again alluding to tactile interactions with screens that we can wipe, slide and move.

If *Men, Women & Children* uses graphics to show the intersection of the physical body and digital subjectivities, 2016's cyber-thriller *Nerve* utilises graphical elements to further dramatise the integration of the online and offline self, whilst employing haptic elements to visualise bodily contact between one's real-life self and a community of ever-present, yet largely unknown, virtual others.

Touching a Nerve: Gamespace, the Internet Gaze and the Mise-en-screen in *Nerve*

Nerve explicitly invokes touch-controlled mobile devices in order to explore issues surrounding digital/physical consent and subjective agency in composite material/mediated environments. In *Nerve*, haptic textual and symbolic graphics highlight the body's passage between, and simultaneous presence in, online and real-life environments. The modern mobile phone's touch screen acts as the primary interface that connects, and allows for contact between, the physical and digitally represented body. The premise of *Nerve* imagines an online game where users can choose to be 'players' or 'watchers.' Players receive payment for carrying out dares, while watchers pay to view their favourite players. In order to complete a dare, players must record themselves on their own phone. This conceit allows the film to move back and forth between objective depictions of the action and footage either viewed or filmed by characters on mobile phones, usually accompanied by an increasing tally of watchers next to an eye icon on the bottom right of the screen and sometimes hearts floating up the screen as watchers express their appreciation. At times, it becomes difficult to distinguish whether the action is taking place on or off the mobile phone screen until a hand appears on-screen to swipe away or turn off the graphics. Haptic graphics also emphasize the interactive presence and gaze of the voyeuristic watchers as the shots from the perspective of the phone screen (which thus shares the perspective of the watchers) position the characters as objects of the gaze. As the characters touch the phone screen, which is also frequently the viewpoint of the film audience, we become aware of a point of digital contact. Graphics are thus once again integrated into three-dimensional environments and make contact with physical bodies rather than only providing extra-diegetic information. In

Men, Women & Children, graphics are used to signify a direct link between thoughts and digital influences; in *Nerve*, characters touch the digital.

Through shifts between positioning the characters as both users/controllers and objects of the interface, the film employs haptic effects to theorise bodily agency in a digitally augmented environment. These questions of voyeurism and agency have remained crucial to films about gaming in general, but *Nerve* significantly dispenses with the use of avatars in favour of users willingly playing themselves in a game that takes place in the real world of their ordinary lives. Instead of depicting players controlling human avatars, the presence of the 'watchers' is represented primarily by graphics in the form of scrolling comments, hearts and so on integrated with the footage of the players carrying out dares. In place of a separation between gameworlds and the real world, the graphics in *Nerve* represent an intertwining of digital and embodied space. In order to examine *Nerve* as a development in the depiction of gamespace, I will briefly discuss Neveldine/Taylor's 2009 science fiction film, *Gamer*, as a contrasting antecedent, which approaches similar themes of voyeurism and vicarious experience with a different spatial model based upon the use of human avatars and mirroring. This comparison demonstrates how *Nerve* draws more from the visual language and tropes of social media than avatar-based video games, whilst incorporating into its visual aesthetic the seemingly transparent interfaces described earlier in this chapter as modelled on "our primary perceptual organs and senses, that is: sight, hearing and touch" (Elsaesser cited in Kallay 83).

Like the payment system for players and watchers in *Nerve*, *Gamer* envisages a system in which human participants provide voyeuristic entertainment for a price. In common with another science fiction film released also in 2009, *Surrogates* (Jonathan Mostow), in which users stay in seclusion whilst utilising surrogates to represent them in their daily interactions with others, *Gamer* uses human avatars as its structuring metaphor. In *Gamer*, two games have become popular cultural phenomena. In 'Slayer,' prison inmates on death row have the option to act as avatars for players in a war game with real deadly guns and bombs. If they survive thirty rounds, they are granted freedom. The film's protagonist, 'Kable' (Gerard Butler) is a star fighter, who is three rounds away from earning his freedom and reuniting with his wife, Angie (Amber Valletta). Angie has found employment in the virtual reality game 'Society,' where players have the opportunity to control human avatars and carry out their basest, most hedonistic fantasies in a colourful gamespace. As we are informed in a talk show segment about the games that features early in the film, "you can get paid to be controlled or you can pay to control." Players control their human avatars via neurological transmitters and each human participant has an IP address, like a computer. In this way, humans become digitally coded products; as Steven Shaviro observes, the "brain interface is a way of embedding commodity relations

directly in the flesh" (108). In theory, this neurological control is limited to the game environment, although the film suggests that the socio-economic oppression that drives humans into becoming participants in the games extends beyond the gamespace. To approximate the perspective of a first-person shooter game, Neveldine/Taylor occasionally use shots from the perspective of one of the fighters in the sequences set inside 'Slayer', with graphics providing information as in a video game, such as the distance to a save point, while flashes of digital interference or glitches, such as graininess or lines in the image, signify a digital environment. These graphics mostly function to give information about the world in the way described by Galloway (42) at the beginning of this chapter, rather than being material objects for the characters to touch. Despite the occasional first-person perspective shots, for the most part we watch the gamespace unfolding from a traditional third-person perspective; thus, "our extradiegetic position as spectators of *Gamer* is mirrored by just about everyone… within the world of the diegesis" (110). We are spectators just as those depicted playing the games watch from a separate ontological level.

The mental control, but spatial separation, between the players and their human avatars aligns *Gamer* with virtual reality and contained fantastical gamespaces. For example, one of the film's most garish sequences depicts Angie working in Society, which is configured as a giddy, music video-like pornographic playground. To the pulsating tune of the Bloodhound Gang's 1999 hit "The Bad Touch," women dressed in bright colourful outfits and short skirts race around on rollerblades, often shot from low-angles emphasizing their bottoms, while other avatars kiss and caress each other or dance in a sexualised manner. The quick cutting and emphasis on body parts moving in time with the rhythm of the song recall music videos, while the lyrics of the song's chorus—"You and me baby ain't nothin' but mammals/ So let's do it like they do on the Discovery Channel"—explicitly label the human employees both as animals and as objects of viewership. This colourful, excessive sexual fantasy land is periodically interrupted by shots of players, who look nothing like their avatars, sitting against a black background. The emptiness of their backgrounds emphasizes their isolation and immersion in the world of 'Society.' In a bizarre interlude, we see a young woman with dark hair, dressed all in black, suddenly, and for no apparent reason, smash into one of the rollerblading women causing a pile up with their legs in the air, showing their underwear. We then cut to a shot of an older lady with thin, round glasses and grey hair (the owner of the avatar) grimacing against the blank background; there is a sense of shock at the involvement of an older woman, who fits stereotypical images of a kindly grandmother, in such a hedonistic game. Returning to the game, we see the avatar in close-up with smudged mascara and then she begins to laugh violently. This laughter is a jarring reaction given the ruined makeup and the following shot of a bloodied

wound on her leg. Again we see her controller also laughing at the carnage she has caused. The contrast between the physical violence and pain inflicted on the woman and her absurd, mechanical reactions dictated by her controller (who also makes the avatar lick her wounded arm) emphasizes the lack of physical consequences for the players. In one telling moment, just as we return to the game after the shot of the old lady laughing, we see the avatar briefly look terrified before she continues laughing. It is as if a tiny glitch has allowed a miniscule time delay between the old lady's reaction and the avatar replicating it, letting her own emotion slip through. In this way, the film emphasizes the lack of agency on the part of the avatars as well as the voyeuristic pleasure controllers receive. The juxtaposition between the avatar and their representation in the gamespace is most obvious in the final part of this sequence when we see Angie approach a young man and have sex with him. After the man greets Angie, we cut to a shot of remotes on a couch followed by an extreme close-up of a sweaty, overweight man's lips as he responds, "Hi." It is now clear that the overweight player is Angie's controller. While Angie flirts with and has sex with the young man, we cut back and forth between the game space and her controller eating a waffle and masturbating. In this scene, sexual pleasure becomes explicitly linked to the act of watching and objectifying the body of another in a virtual fantasy.

The film further exemplifies the vicarious experience offered by gaming through mirroring between Kable and his controller, seventeen year-old rich kid, Simon (Logan Lerman). As Shaviro writes, they are depicted in separate spaces, but carrying out the same motions: "Within Slayer, Simon's relation to Kable is expressed by shots in which the two appear side by side, at full-body length, in the combat zone; we see Kable's moves miming Simon's own gaming gestures" (111). This explicit mirroring visualises the power relations between controller and avatar utilising bodily movement, but retains a spatial separation.

By contrast, *Nerve* reflects social and ubiquitous media's audio-visual and rhetorical emphasis on self-presentation, depicting game participants who willingly invite others into their online/lived experiences rather than avatars whose actions mirror those of their operators but take place in a separate, artificial gamespace. For the most part, the film represents voyeurism and vicarious experience through characters' bodily interaction with a graphical interface. This interface depicts the presence and perspective of the watchers represented by comments appearing on-screen rather than separate cutaways to shots of the watchers. The graphics are thus integrated into the spaces of the film and the presence of the watchers is graphically incorporated into the reality of the characters. In this way, the film employs spatial rather than temporal montage to tell its story, echoing Manovich's distinction between the forms (*The Language of New Media* 155-159). Like in *Gamer*, mirroring plays an important role in the film's visual schema, but this mirroring does not take place between a player and their human

avatar but rather between the player and their on-screen image seen from the perspective of the computer and/or phone. Significantly, players freely choose to sign up to the Nerve game unlike the inmates competing in Slayer in *Gamer*, whose only other option is certain death by execution. Although the financial imperative in *Nerve* echoes the earlier film's conception of the 'Society' game, in *Nerve*'s story, money appears to be a secondary priority to attention and self-affirmation for players, who carry out dares in order to gain financial reward, but more importantly, increasing numbers of watchers. The film's protagonist, Vee (Emma Roberts) is an unassuming photographer and high school student, who lacks confidence to make important life decisions, such as accepting a place at a prestigious college rather than staying with her mother in their Staten Island home. Photography becomes an important metaphor in the film as Vee initially prefers to be behind the camera, rather than its subject. Her more outgoing best friend, Sydney (Emily Meade) encourages her to join Nerve, as Sydney has become a minor star on the website with a dedicated following. After Sydney betrays Vee by approaching a boy that she likes on her behalf, Vee impulsively signs up. As the dares must be filmed on the player's own phone during the course of their everyday life, *Nerve* references the increasing desire to share the details of one's activities via social media as well as the conflation of material and online space utilised in augmented reality games,[18] but also in everyday practices of ubiquitous recording. The graphical interface utilised in the film emphasizes this increasing integration of recorded and inhabited space, drawing its governing metaphor from social media applications.

The film's directors, Henry Joost and Ariel Schulman, utilise graphics that the characters appear to be able to touch to signify fluidity between the material and digitally represented spaces captured on the mobile phone screens. Gamespace is no longer clearly defined: haptic graphics highlight the passage between apparently 'objective' cinematic space and what I have previously termed the mise-en-screen.[19] In this case, the mise-en-screen refers to shots where what we are seeing is in fact playing on or being recorded by a mobile phone. By seamlessly moving in and out of this mise en screen, *Nerve*, like all of the films discussed in this chapter, works to destabilise ontological and phenomenological borders. In an early sequence in the film, for example, Sydney completes a dare in which she must flash the audience during a cheerleading performance. The sequence begins with a message from Sydney to her watchers, identified as a phone recording not only by its direct address but also by the presence of her Nerve handle (@SYD_BABY) on the left and the an icon of an eye signifying the watchers with

[18] In fact, it is tempting to view the film as an eerily prescient prediction of the short-lived cultural phenomenon of *Pokemon Go*, where users were encouraged to record their everyday spaces in order to collect 'Pokemon,' which would appear in the recordings.
[19] In Chapter One, in relation to *The Bling Ring*.

a rising total in blue on the right. Sydney gives her phone to another student watching from the stands to capture the dare. As Sydney carries out the dare, the sequence cuts back and forth between apparently objective footage of the actions, footage from Vee's camera and footage shot on Sydney's phone. As the sequence concludes, a seemingly objective shot of the cheerleaders suddenly features the graphical symbol of a spinning dollar sign moving towards the camera through the three-dimensional environment of the field. As already discussed in relation to *Scott Pilgrim vs The World*, this movement of graphics through material spaces, in this case the football field, presents the virtual as live and dynamic, rather than characterised by the "surface topography" of science fiction films of the 1970s and 1980s (*Screening Space* 225). In *Nerve*, the overlaid graphics appear to be advancing towards the viewer as if arising out of the image on screen, putting the viewer in the position of a user of Nerve receiving their reward. Without warning, we have left the perspective of the extradiegetic camera and entered the 'mise en screen'. Such abrupt shifts punctuated by haptic graphics create the sense that gamespace is both located within and exceeds the material space depicted in the frame.

By moving seamlessly in and out of the mise-en-screen, the film consistently creates ambiguity as to who constitutes the subject and object of the digitally mediated gaze, presenting the mobile phone as both a tool for viewing others and a kind of perverse two-way mirror. Following the scene at the football match, for example, we see a series of people carrying out dares in mobile footage, with hearts floating up the screen and so on. The succession of videos is not introduced by any shot showing a person watching their phone screen. This succession of videos concludes and we see a shot of Sydney's face, with her friends in the background from the perspective of the phone screen, as a "$500" symbol appears on screen, followed by a shot showing a leaderboard listing the top players superimposed over the image of Sydney and her friends. The videos we as an audience were watching were clearly playing on Sydney's phone, thus we as an audience are, unknowingly, placed in her viewing position. When we see Sydney and her friends, however, we are placed in the subject position of the phone, held up as a mirror for Sydney. In this way, the phone's perspective becomes aligned with that of the audience, implicating us as voyeurs, whilst simultaneously challenging ontological boundaries between recorded and embodied space.

In conjunction with these switches of perspective, the use of haptic visual effects emphasizes shifts in control over the navigation of the interfaces, visually linking this control over digital space to bodily agency. The progression from user, and controller, of the interface to object of the interface is exemplified by two contrasting sequences involving the film's main protagonist, Vee, and visual graphics that simulate Vee touching the interface. The film's opening sequence begins with a shot of Vee's desktop computer screen, displaying her log-in

screen. We see the screen from her perspective, before the filmmakers have introduced the audience to Vee. She types her log-in password, represented by moving text and cursors and the sound of her tapping the keys, and enters her desktop, opening a Spotify playlist and navigating to her Gmail account, where she begins to type an email declining a place at a college. As the sequence progresses, Joost and Schulman cut between short shots of Vee's face/hands and much longer shots showing her on-screen, multi-window activity as her pointer clicks between Facebook notifications and opens a Skype call with Sydney. As the opening shot is not of Vee herself, but of her desktop computer account (with a photo of a man holding a camera to his eye and her log-in username, Venus Delmonico), the film immediately highlights digital identities as a key theme, while the inclusion of Facebook in this sequence alludes to the real-world practices of self-presentation that underpin the fictional website/game, Nerve, in the film. In contrast to later sequences, in this sequence the computer graphics are presented from the embodied position of Vee and she has total control over their navigation.

The next sequence where Vee sits at her home computer inverts this sense of agency by progressively divorcing the film's graphical representation of the online world from Vee's subject position. Initially, we see Vee in front of the computer screen and, from her perspective, the opening screen for the Nerve website fills the frame, which features neon-coloured text displaying the name of the game and, underneath, the two options to sign up as 'WATCHER' or 'PLAYER.' The camera appears to delve into the screen, as if tracking rapidly,[20] and moves into the behind-the-screen world of Vee's computer, which is depicted as an expansive and three-dimensional space, extending backwards. The camera zooms further into this Internet space, moving past floating windows representing the applications and sites Vee currently has open. Then this subject position appears to move forwards through the space, coming to rest just behind the surface of the computer screen. The camera is now facing towards Vee/the screen from inside the computer. We see Vee sitting at her desk from the impossible subject position behind the translucent screen and we see the graphics displaying the options of 'watcher' or 'player' on the surface of the screen. From this point of view located inside the computer screen, the graphics appear backwards as if reflected in a mirror, once again reinforcing the idea of a union not between Vee and a different avatar but between Vee and her reflected/recorded image. Vee's finger comes towards the digital camera position to press the 'PLAYER' button and it is as if her finger is making contact with the surface of the screen, suggesting a traversal of boundaries between physical space and the digitally recorded/represented. As Vee becomes a player, the film's audience become watchers from inside the computer screen just as the

[20] The effect is most likely created using digital effects rather than a camera.

watchers gain access to Vee within the narrative of the film. While Vee sits at her desk in medium-shot, pixelated slightly as if on a web-cam from the perspective looking back at her from behind the screen, a round, bright green loading icon moves on her chest. Its placement near the centre of the image of her chest suggests a kind of transmutation of her physical body into her digital body, with the loading icon taking the place of her heartbeat.

This conflation of the physical body and the digital body reaches its culmination when Vee must sign in on her phone. In this scene, she offers her consent for a merging of her online and off-line body, thus giving up her physical control. The scene uses haptic graphics to depict the immersion of the physical body in its digital image as well as the union of three levels of signification of the self. As Vee holds her phone, we see her face displayed by the phone's camera as she is holding her phone horizontally. Above the camera's capture of her face, there is a button saying 'ENTER ID.' Over the horizontal image of her face captured by the phone, a yellow digitised version of her fingerprint appears. Vee's physical finger moves into the frame and towards the camera position, making contact with the digital scan of her fingerprint. In this shot, Vee's physical finger, a digital scan signifying her identity, and her image as captured by the camera, become one. The use of the fingerprint scan to unlock the phone and sign into Nerve emphasises ambiguous issues of consent; by confirming that this digital scan matches her physical body, Vee consents to the use of her image (and thus recorded body) by Nerve. The contact between her finger and the screen further symbolises her consent to digital contact between her body and the digitally represented watchers.

The sequence ends with another trip by the camera into the digital ether behind the screen. With the use of graphics, the sequence depicts Nerve producing her profile by extracting data that Vee has already shared from her various windows and profiles represented graphically as floating weightlessly in the Internet space behind the computer screen. The programme moves between these windows, pulling data. In this scene, it is the inhuman algorithms of the program that control the navigation of both digital space and Vee's digital identities, not Vee herself. Here, graphics are utilised to emphasize a lack of control, following Vee's offer of consent to the program to produce her digital representation. It is as if the invisible hands of the computer program are assembling and reassembling Vee's data from her many representations in online spaces, such as on social media networks. This sequence thus produces a stark contrast with the film's opening sequence, where haptic graphics placed us in the subjective position of Vee controlling the navigation of her online space and thus demonstrated the authority of her material body over this space.

As the film goes on, the watchers' perspective, as symbolised by graphics overlaid onto the image, becomes integrated with the hybrid material/recorded spaces that Vee inhabits while playing Nerve. This integration emphasizes the ubiquitous voyeurism offered by the game, as well as the anonymity offered to the watchers, who are allowed to vicariously participate in the actions depicted, but whose viewing presence is represented on-screen only through textual identifying handles in sidebars in the shots of Vee rather than via cutaways showing these individuals. In this way, the film equates graphics with presence in the same space. In one memorable sequence, Vee must complete a dare where she has to try on an expensive dress. In the changing room, she places her phone on the floor, therefore capturing herself from a low angle. The perspective is thus directed by the mise-en-screen, but we are simultaneously viewing the character in material space within the diegesis. Because we do not see the borders of the phone screen, these spaces become interchangeable. As she undresses, a constant stream of comments scroll down the left side of the frame, echoing the use of graphics to show online activity in *Men, Women & Children*. These comments become increasingly vile and objectifying as users make observations about her body shape, side bets on whether she will be able to zip the dress up and statements such as "id rather watch her transgender brother." Unlike the characters in *Men, Women & Children,* Vee is not aware of these comments and does not see them as part of her experience of the space, as the phone is too far away for her to read these rapidly scrolling comments. The watchers are thus contributing to the hybrid online space and affecting her representation, but without her knowledge. At one point, Vee appears to become aware that she is standing in her underwear and looks down towards the phone, embarrassed. The scene thus suggests that both her physical and online image have been compromised and violated by the watchers, through their intrusive presence in her recorded/inhabited space.

The film exposes these anonymous participants/voyeurs in the climactic moments of the film's finale, emphasizing the real-world perils of composite material/digital spaces by placing graphics within the users' surrounding environments. After attempting to gain assistance from a police officer and disclosing information about the game, Vee becomes a 'prisoner' of the game. She must follow the game's instructions and compete in a final dare to save herself and win the competition. The film emphasizes the inescapability and widespread control of the game through the motif of the game delivering messages/instructions to Vee via elements of real-world spaces, such as on a digital sign at a ferry terminal. Such integration into real-world spaces resonates with the film's wider meditation on the conflation of digital and material space. Finally Vee reaches the gladiatorial ring where the final showdown will take place. After Vee refuses to complete the final dare of shooting her game partner with a gun, rival competitor Ty (Machine Gun Kelly) appears and offers to shoot Vee. The game decides to ask its users to vote on whether

Vee will live or die and, instead of seeing users just as handles on the screen, we cut to a montage of different users. The options 'YES' and 'NO' appear above or around these users, integrated into their background surroundings, such as on the wall of a restaurant kitchen where staff are accessing Nerve or above a couple in a cityscape. This use of graphics integrated into the actual, material spaces inhabited by the Nerve watchers suggests that the high stakes of deciding whether a player should live or die have made the users aware of the real-life consequences of their choices and culpability. Just as the yes and no buttons become a part of their worlds, they too realise that their choice will have ramifications beyond the digital. No longer are they usernames, but instead we see the very people making this horrific choice. Ty shoots Vee and the film appears to end tragically, until it is revealed that Ty was in fact working with Vee's geeky male friend, Tommy (Miles Heizer), who has hacked the game. Ty shot Vee with a blank. Nevertheless, believing a woman to have died, users flee from Nerve, as the number of watchers steadily plummets next to the blue eye symbol at the bottom of the screen.

Although the conclusion of *Nerve* relies upon a last minute plot twist and happy ending that somewhat dilute its power, the film stands out for its skilful use of graphical elements to represent perspective shifts and seamless movement between objective diegetic space and the mise-en-screen, and between digital and lived space. This integration of the interface and corresponding visualisation of contact between the body and the digital self contrasts strongly with *Gamer*'s depiction of gamespace as a separate space populated by unwilling human avatars. Such utilisation of an almost transparent interface represents another step in the aesthetic relationship mapped in this chapter in which graphics are both increasingly integrated into cinematic space and represent an increasing threat to bodily and subjective agency for the characters. *Nerve* offers a vision in which technologies that purport to enhance bodily agency, through both their touch-controlled graphical interfaces and capacities for ubiquitous self-presentation, ultimately make the body vulnerable by collapsing distinctions between the user as subject/object of the interface and between material/mediatised space.

While *Nerve* frequently invokes the perspective of a recording mobile phone camera, *Unfriended* places the viewer inside the body of a computer user and merges the cinematic frame with the computer interface completely. If the virtual is a power in *Scott Pilgrim vs The World*, a dangerous minefield of content that can harm one's body in *Men, Women & Children* and a voyeuristic two-way mirror in *Nerve*, in digital horror film, *Unfriended*, it is a killer.

When The Computer Screen Met The Film Frame: The Horrific Interface in *Unfriended*

Unfriended is a horror film that is as concerned with contemporary experiences of mediated space as it is with shocks and gore. The film centres upon Blaire (Shelley Hennig), who is

spending the evening chatting online via Skype and Facebook to her boyfriend, Mitch (Moses Storm), and a small group of their friends. A mysterious avatar joins their Facebook conversation, who turns out to be the ghost of Laura (Heather Sossaman), a childhood friend of Blaire who committed suicide after an embarrassing video of her drunk circulated via social media. Through tormenting the other characters with her Skype and Facebook accounts, Laura forces the teenagers to reveal all of the terrible things that they have done to her and to each other, with fatal consequences. *Unfriended* utilises embodied subjectivity, mimicking the operations of the hand and senses with computer graphics and placing the viewer in the position of the computer user, in order to tell this story that is paradoxically about the erasure of the physical body by the virtual. In this way, the film utilises a hybridised form of digital body horror to explore the way that bodies are increasingly integrated into the virtual to the point that we are no longer aware of a distinction, while on the other hand our virtual selves increasingly take precedence over or subsume the material body. *Unfriended* thus expands upon the themes of digital consent and transmutation of the real/digital body explored earlier in relation to *Nerve*, but here grafts these themes onto a horror narrative.

The use of media objects as vehicles of technological terror is not new in horror. For example, Caetlin Benson-Allott examines the way in which films have utilised video technology as a vehicle to explore the intersection between "cultural and technological anxieties" (15). In *Videodrome* (David Cronenberg 1983) watching video content on a television show embeds a brain tumour in the viewer that infects their subjectivity and body. The film reflected contemporary moral panic about the newly available video tapes and in particular graphic sadist videos that might find their way into homes (19-20). Fifteen years later, *Ringu* (Hideo Nakata 1998) tells a story about a dead girl's ghost that inhabits a video tape, which sentences its viewers to death in seven days if they do not pass the curse on and copy the tape for another viewer. Here the tape is "the ultimate death's head: a small black reminder that we are all going to die someday" at a time when video itself was on the cusp of becoming obsolete (21). Several more recent films have provided an updated take on technological content as akin to a deadly virus that spreads from person to person (Jackson 34-35). *Chakusin Ari* (English title One Missed Call, Takashi Miike 2003) features a ghost that leaves voicemail messages, which act as flash forwards to the recipient's imminent death, then, and after they have died, contacts from their phone's directory experience the same phenomenon; in *Feardotcom* (William Malone, 2002) viewers of a website that a serial killer had previously used to broadcast murder and torture die of a horrific "hemorrhagic virus" (35-36) In this category of technological virus horror, Kimberley Jackson argues, terror is generated from "our reliance on and intimacy with technological devices" because "images and wireless signals become heavy, haunted, ghost-

laden" (33). What distinguishes *Unfriended* from these other examples, however, is the film's diegetic confinement within the space of the computer screen interface.

Unfriended can thus be considered a particularly sophisticated example of a growing body of films termed "digital horror." In the introduction to their collection of essays on the topic, Linnie Blake and Xavier Aldana Reyes define digital horror as:

> a diverse range of films with differing perspectives on the contemporary world, but, in its more complex and engaging manifestations, unified by an interest in the impact of new technologies upon our diverse societies, our relation to the past and present, and upon human subjectivity itself (11).

For Blake and Reyes, digital horror must not only utilise formal qualities of the digital or digital media, but also engage with the place of the digital in society. They identify three main groups of films under this umbrella: found footage, surveillance and haunted technologies (11). *Unfriended* is explicitly about a haunted technology—in this case a ghost inhabiting social media networks—but the film bears the influence of found footage films, in its frequent use of restricted perspective through video chat windows and webcams. The entire film takes place on Blaire's computer screen. Although the camera is presumably placed in Blaire's perspective, we see only what she sees on her screen as her mouse navigates and hides windows, moving between Facebook, Google, Skype and Gmail. We are placed in her body's position, which we interpret through the movement of her cursor on screen, the visual stand-in for the physical movement of her mouse. It is in this respect that the film shares some qualities with found footage horror films, where the perspective of the characters is also refracted through a technological gaze that "foregrounds the presence of the camera" (Benson-Allot 180). In found footage horror films, however, there is nevertheless an appeal to immediacy because the films approximate the markers of authenticity and realism from amateur videography, such as jittery handheld camerawork and natural lighting (179-181).[21] Just as found footage films use the conventions of video to structure their gaze, in *Unfriended* it is the hyper-mediated interface of the computer that constructs the film's perspective: the graphics and text-heavy interface becomes the perspective of the film.

It is through haptic effects that *Unfriended* makes this interface a source of not only digital, but also body, horror. While body horror is generally associated with films high in exposed intestines, blood and flesh, which speak to our fear of compromised or out of control

[21] The film's temporality also distinguishes it from found footage as the latter category of films are inherently considered to have taken place in the past temporality of the recording, whereas *Unfriended* presents itself as occurring in real-time.

bodies, *Unfriended* utilises these kind of effects only occasionally and briefly. Nevertheless, the film consistently partakes in what Larrie Dudenhoeffer describes as "the condition of embodiment," which "makes the horror film horrifying" (5). For Dudenhoeffer, body horror refers not only to the victims and monsters on screen, but also the spectator's embodied responses to the images *and* the ways in which formal or narrative aspects of horror films both mirror and appeal to bodily senses and processes (8-9). Body horror can thus be defined as "the over-excitation of body tissue" causing "shock, discomfort, and other affective charges" (9-10). In *Unfriended*, excessive hyper-mediated visual stimuli are used to signify the fearful bodily responses of the characters translated into digital symbols and graphics. This subjective embodiment in turn generates an affective bodily response from the audience. Like its more bloody cousins, *Unfriended* thematises the loss of autonomy over the digital and/or physical body, precisely through emphatic embodiment and haptic effects.

In this way, *Unfriended* extends some of the key ideas from other examples of digital horror. Jackson notes that in films such as *Ringu* and its American remake, *The Ring* (Gore Verbinski, 2002), the horror lies in the relationship between reality and image (35). The viewer, who is external to the diegesis, views the same images that the characters do and is thus aware of the potential for the images to infect them in the same manner (35). Furthermore, the image itself becomes horrific because we never see the film's ghost as a real person/character, but only as a distorted mediated version: the ghost in *The Ring* "exists only as an image on her videotape" (43). *Unfriended* intensifies this relationship by not simply forcing the viewer to watch the haunted media, but trapping the viewer in the embodied position of the computer user for the entire duration of the film. Furthermore, it not only reduces the ghost to a horrific image, but in fact depicts its protagonists only as mediated images of themselves from the beginning of the film, implying a voluntary, banal and pervasive mediatisation of the self through various social media before the horror even begins. Thus, the film both extends similar metaphors from earlier digital horror and exemplifies the trend explored in this chapter in which digital technologies both invoke and approximate the body's movements and controls, while simultaneously threatening bodily agency as digital representations integrate with physical bodies and produce composite subjectivities.

Typically the cinematic camera depicts a character from an objective third-person perspective or, for usually isolated scenes or shots, embodies the position of a character from the first person. In *Unfriended*, we experience the events from Blaire's point-of-view, but not with a moving camera placed in her position. Rather, we understand what Blaire is seeing through the visual representation of her screen, the text she types and what she is doing with her mouse to navigate that screen. *Unfriended* creates a sense of fear and claustrophobia precisely

because of the degree of confinement- we are trapped within Blaire's computer interface. Once again demonstrating Manovich's distinction between temporal and spatial montage and the computer's privileging of the latter (155-158), Blaire does not move from her position in her bedroom and thus the camera never cuts away from her but we instead see her moving windows around on her computer screen to emphasise different parts of the image, while sound levels on the audio track also indicate Blaire's shifting attention to various competing windows. In the middle of a group Skype conversation, for example, Blaire leaves that window to gather more information about the ghost and/or conduct a private messaging conversation with her boyfriend, Mitch. As she re-joins the conversation, we see the Skype interface on screen and hear the voices of her friends fading up mid-conversation as the on-screen Blaire in her chat window puts her headphones on. In this way, the interface directs the perspective of the film. Cinematic space becomes synonymous with screen space and the character's point-of-view collapses into the character's screen navigation.

This utilisation of the computer screen to direct perspective resonates with, yet diverges from, Seung-Hoon Jeong's argument that when a medium is depicted in film it can replace the traditional technique of suture by intervening between characters' subjectivity and the cinematic image (19; 27-31). Jeong analyses Michael Haneke's *Caché* (English title Hidden, 2005) in which Georges (Daniel Auteuil) receives mysterious videos, depicting his family's house from the street, as well as violent child-like drawings. Eventually, after a number of clues hidden in tapes, Georges comes to suspect Majid (Maurice Bénichou) as the sender. Majid was an Algerian child, adopted by Georges' parents, whom Georges had sent away in jealousy. Jeong notes that the videos, which Haneke allows the viewers to experience on screen, as well as the shots of the exterior of Georges' house that open the film, may be attributed to the external perspective of the director, the perspective of a character watching the house, the perspective of the video producer or some psychological perspective (27-29). As we are unsure whose perspective the videos represent and they are not tied to a character's gaze, "the intradiegetically external viewpoint…hints that there might be no human character to occupy this position except for a nonanthropomorphized camera eye as such" (29). This usage of a medium interface creates a sort of disembodied gaze in *Caché* that Jeong argues divorces suture from character, because our viewpoint and perspective in the narrative as an audience member is not tied to an identifiable character's subjectivity (27-31). By contrast, in *Unfriended*, the interface transmutes the character's subjective perspective into computer graphics, but remains deeply embodied for all but the final moments of the film. Suture is thus not replaced by a dislocated gaze, but rather is transmuted into its technological representation.

Because we only see Blaire's face when it is necessary for her to appear on-screen within one of the programs, her emotions are often conveyed through simulations of the movement of her cursor/pointer. As her hand movements become one with the trackpad and the mouse's symbol (the pointer), Blaire becomes a kind of cyborg character. Her perspective is established through a combination of graphical representations of movement and, significantly, typed text on-screen. The direction of perspective produces a degree of "haptic visuality" (Marks 131) as the pointer moving over the screen opening different windows replicates the movement of her hand visually. As Blaire helplessly clicks through windows and/or jiggles her cursor, the film places the audience in the embodied position of the computer user (Blaire), thus providing a sense of actually touching the interface that structures the film. When Blaire is unsure what to do, for example, her cursor/pointer hovers with uncertainty; when she is upset and scared, it clicks frantically on windows on-screen. In one memorable sequence, she is trying to find someone to call the police as Laura is murdering their friend, Jess (Renee Olstead). She enters a "chat roulette" site where one video chats with an assortment of randomly selected users for a fixed amount of time or until one chooses to move on to the next user. The increasingly quick changes between chat participants help convey her fear—and replicate the visceral feeling of panic and tension for the audience—as Blaire desperately cycles through users, opening one chat after another with increasingly forceful and loud mouse clicks. In another use of the interface to convey Blaire's inner turmoil, we often see her type a message then reconsider and delete or alter it before sending it, especially in her Facebook interactions with the ghost of Laura. When Laura asks her if Mitch was the one that posted the embarrassing video of her, we initially see Blaire typing a response that states that he wasn't, finishing her assertion with "I promise." She then erases the promise at the end, before finally deciding to erase the entire answer and instead tell Laura that it was Mitch in order to save herself. Her hesitation and eventual betrayal of her boyfriend are depicted graphically through text typed and backspaced.

Throughout the film we learn about Blaire through the constructed images that she presents via a number of different platforms. The film therefore exploits the dispersed and interactive qualities of self-image formation using social media (Elwell 244-246) in its character construction. For example, the first image that we see of Blaire depicts her in a private Skype conversation, performing on screen and making sexually suggestive comments to Mitch, who pretends to threaten her with a knife. Blaire is here playing both a frightened woman and projecting an exaggerated version of her sexuality. Later we learn more about her from glimpses of her Facebook page, where she seems to be a largely humane character, who had a good relationship with Laura (the page displays photos of the two young women from childhood until the present). Finally, the audience changes its attitude towards Blaire once more as the ghost of

Laura plays the full video showing that Blaire was in fact the one filming the drunken incapacitated Laura and making fun of her. This strategy for building a character in film from assorted mediated versions of them reflects the way that social media enable us to build our own online identities "according to the aesthetics of transmedia production," where a story is told across multiple media (Elwell 233). J Sage Elwell argues that our identities are similarly constructed using a number of different platforms, such as blogs, YouTube and of course social media, thus producing "a networked ecosystem of digital selves" (237). The film utilises this model in order to construct its characters, particularly Blaire.

Unfriended reveals such a "networked ecosystem" (Elwell 237) to be vulnerable to invasion and intrusion from outside entities, invoking what Neal Kirk dubs "networked spectrality" (55). Kirk introduces the term in relation to films about online hauntings in order to

> account for representations of ghosts that are transitioning from the singular, linear, personal and analogue to ghosts that are digital, multiple, nodular and distributive. It also considers how haunting becomes more interactive through new media technologies (55).

These ghosts are not tied to a particular place, person or object and may multiply via immaterial networks (56-57). Kirk focuses primarily on an American re-make of a J-Horror film, *Pulse* (Jim Sonzero, 2006) with some striking similarities to *Unfriended.* In this film, a computer virus opens a porthole for the dead and unleashes a multitude of ghosts. Such films exemplify the Internet's function in horror films "as the means of distribution *and* haunting" (57). Although there is only a single ghost in *Unfriended,* Laura's ghost appears to spread through the network of the Skype conversation, killing every participant one by one, and infects all of their social media profiles, travelling between platforms. As Kirk notes, contemporary horror films play upon our fear of digital contagion, using the ghost as a metaphor for a virus or other intruding entity (60). If users are connected with vast numbers of spatially dispersed others, it becomes conceivable to imagine "new media technologies [as]… participatory, multidirectional portals connecting the living and the mediated, spectral dead" (56). Jackson similarly comments that haunted technology films play upon our subconscious anxieties over the boundaries of connection, suggesting that "we have been connecting to others in ways more intimate than the passing of information, and that all sorts of human-technology interminglings have been taking place without our conscious knowledge" (34).

Like *Pulse*, *Unfriended* projects anxieties regarding whom we connect with and thus allow access to our networks. Despite its supernatural premise, *Unfriended* highlights the real-world risk of losing control of dispersed images of ourselves. The film acknowledges that our

identities are not entirely under our control because they are, as Elwell describes them, "interactive" (246). When we post material on social media, we target an intended audience who, we hope, will respond and in this way "we invite others to contribute to the story of our selves" (246). This degree of interaction is explored in an extreme manner in the film as Laura begins hacking into the teenagers' Facebook accounts as well as posting another series of embarrassing photos of one of the girls. As a result of these malicious acts, all the characters' secrets are revealed. The teenagers accuse each other of posting this material and, in an effort to find the culprit, they all raise their hands on screen in a multi-window Skype conversation. Although their hands are up, text and images continue to appear. Just as the hands of the characters disappeared in *Men, Women & Children*, here the actual bodies of the characters cease to control the representation of those same characters in their social media profiles. Whereas in *Scott Pilgrim vs the World*, the virtual is able to be touched, here the virtual continues with or without physical bodies. While the film viscerally depicts Blaire's bodily interactions with technology through the graphical depiction of shaking and jolting cursors and so on, it also paradoxically depicts the erasure of Blaire's bodily presence. The representation of her and the other teenagers is finally operated not by their own disenfranchised bodies, but by a disembodied ghost. By the end of the film, all of the teenagers have ceased to exist in bodily form as the ghost has disposed of them one by one, but the offending video, which motivated Laura's suicide, plays on. Both Blaire and Laura are gone, but the video footage acts as their digital footprint. They exist now as cyborg formations: a mechanised representation of an organic body. This pessimistic conclusion depicts the final stage of the process introduced in *Nerve*, in which the user increasingly cedes control of self-representation to the interface. In both *Nerve* and *Unfriended*, control of the navigation of digital space is intimately connected to power over the user's body and identity.

Unfriended takes place on one teenager's computer screen and focuses on the intimate relationships, power dynamics, politics and betrayals of an inter-connected group of friends, but the film implies that similar activities could take place within numerous similar corporeal and digital social networks. The film fuels not only the contemporary moral panic around cyber-bullying, but more fundamental anxieties about the place of the material body in an increasingly digital world. Garrett Stewart has written that science fiction cinema frequently displays "a postcinematic iconophobia," which he defines as "a fear of images either more or less dependent on mediated presence than are movie themselves" ("Body Snatching" 228). In a number of cinematic offerings (Stewart uses Michael Crichton's 1981 *Looker* and Richard T. Heffron's 1976 *Futureworld* as examples) the human body acts as a placeholder for cinematic reality via narratives that link "genetic tampering" to the "digital co-optation" of the image (235). While

Unfriended dispenses with the metaphor of genetic intervention more commonplace in the science fiction genre, the warning remains clear: when diegetic reality becomes subsumed by mediation, so too does the human body. Although the film does not explicitly reference cybernetic bodies, it transmutes Blaire and the other characters' bodily presences and actions into digital symbols and recordings, thus connecting digitally altered bodies to digitally created spaces. As Blaire's hand becomes a pointer, her room becomes a hyper-mediated screen and the film's suturing of the audience becomes intertwined with an interface represented by computer graphics. The mise-en-screen is here all-pervasive and inescapable, while the social media and interactive platforms that purport to allow us the greatest control over the representation of ourselves in fact erase us. The total lack of agency in supposedly customisable composite spaces is thus linked to the absorption of the cinematic diegesis by the digital interface. *Unfriended* leaves the audience fearing for the safety of their own hybrid digital/material bodies.

Conclusion: Graphics and Mediatised Space

In his description of the Internet, Aaron Tucker suggests that it constitutes "a space of interaction that demands/requires imaginative projection and conceptualization as well as embodied physical interactions and technologies" (19). Similarly, graphical projections of the virtual interact with material environments within a moving, three-dimensional space depicted on-screen in both *Scott Pilgrim vs The World* and *Men, Women & Children*. This sense of virtual or immaterial graphics making contact with–or even becoming part of–the physical without the containment of screens reflects the increasing progression towards "transparent thresholds" in interface design (Galloway 25) and the wider trend explored in this thesis as a whole where virtual, technologically-mediated spaces are increasingly intertwined and layered upon material spaces. *Nerve* makes its theorisation of transparent interfaces more explicit, by simulating touch-screen mobile interfaces to create a composite cinematic space that hybridises diegetic material space and its mirror image, captured by characters' mobile phones and augmented by graphical elements. Finally, *Unfriended* completely eschews traditional film space and instead subsumes cinematic space within the interface.

All four films utilise visual graphics to summon up other sensory phenomena, particularly touch and movement, in order to offer viewers a vision of complex interactions with mediated space. Together the films explore two seemingly contradictory tendencies in contemporary digital culture, where interfaces are both increasingly operated by bodily movement and becoming so naturalised that the body is obscured by the technology it operates. Paradoxically, each film analysed offers a vision of a more integrated digital/material space, with graphical elements that are shown to be increasingly more touchable, but afford the user less bodily control over this space and their representation within it. If *Scott Pilgrim*

vs The World projects a light-hearted fantastical vision of hybrid material/virtual space where graphics become weapons to be harnessed and projections of inner strengths of the characters, *Men, Women & Children*, *Nerve* and *Unfriended* all enhance and heighten fears about the damaging effects of integration with one's digital self on the physical body, which becomes disenfranchised within mediated, composite space. While this thesis explores how composite spaces may offer a means to extend and augment individual subjectivity via a digital prosthesis, films such as *Nerve* and *Unfriended* emphasise the dangers of composite spaces and the ultimate need to retain mastery over hybrid digital/material identities.

5. Cinematic Computers 2.0: From Cyberspace to Augmented Materiality

Thus far this thesis has focused on films which, through the formal characteristics that constitute their film-worlds, produce cinematic mediascapes that function as (often heightened) projections of the relationship between contemporary modes of mediation and the material spaces upon and within which these media interfaces act. While digital culture and devices have frequently loomed large in the analysis, this chapter focuses more specifically and explicitly on the cinematic representation of spaces created or partially created by that symbol of technological progress, the computer. This chapter thus bookends the thesis by returning to the depiction of computerised space, often linked with computerised consciousness, familiar from the films of the 1990s and early 2000s, but as represented in light of the technological, ontological and cultural developments discussed throughout the preceding chapters. In its analysis of films such as *Transcendence* and *Her*, it furthermore returns to more explicitly science-fiction based films, yet shows how these films remain markedly different in their treatments of digital space and embodiment from their earlier counterparts, such as *The Matrix* and *eXistenZ*.

Tucker notes that films "act as both a molding and a reflecting set of cultural narratives that simultaneously encourage and imagine what a cyberspace could or should look like" (2). This chapter examines a number of recent computer-focused films, which project an interdependent relationship between digital, mediated space and physical environments that aligns them with the cinematic examples analysed in previous chapters. They are, in common with the other films grouped together in this thesis, less about digital simulated worlds than about representing how the digital adds to or extends our embodied reality and subjectivity. *Transcendence* (Wally Pfister, 2014) is a science-fiction cautionary tale about a dead man whose consciousness is uploaded into a computer by his wife. As a computer-human hybrid, he proceeds to raise a powerful force in a bid to change the world. By contrast, *Blackhat* (Michael Mann, 2015) is the only film discussed at length in this chapter that has no identifiable connection to the science fiction genre and centres upon the quest to stop and capture a cyber-terrorist who has carried out hacks with horrifying real world consequences. Despite the different generic contexts, in each film computers and/or computerised consciousness have marked effects on the physical world, which increasingly comes to visually resemble computers and digital space. In this way, the physical and the virtual are increasingly merged. Similarly in both Spike Jonze's love story about a man who dates his operating system, *Her* (2013), and Luc Besson's surreal film about a drug which enables a woman to access the full potential of her brain power, *Lucy* (2014), the computer or metaphors for the computer expand time and space, extending/augmenting rather than replacing material reality.

These films retain a link between the psychological and the computer popular in earlier treatments of cyberspace (Springer 204), but reconfigure the relationship between virtual and physical space as much more integrated than in previous models. Van Dijck notes that the mind has been repeatedly invoked as a model for data retrieval machines and for the working of the Internet with its associative hyperlinks; the brain has thus been "envisioned as the functional model for the computer" (314-316). Given this assumed connection between the processes of the computer and that of the mind, it is not surprising that many science fiction films have linked computerised worlds to mental activity and vice versa. In *The Matrix* for example, the rebels' bodies lie connected to wires, while they are mentally fighting inside the Matrix. When they require a new skill, such as martial arts training, a floppy disk is uploaded into their consciousness and their bodies inside the Matrix suddenly acquire a talent; data transforms into a learned skill. Sylvie Magerstädt argues that more recent films, such as *Inception* (Christopher Nolan, 2010) and the 2012 remake of *Total Recall* (Len Wiseman) invert the mind/computer relationship because they offer visions of internal virtual reality, where dreams and memory take the place of digitally simulated worlds (58-63). These ideas remain present in the films which form the focus of this chapter. Indeed, *Lucy* picks up on the notion of internal computers to a certain extent, as the fully functioning brain with all of its organic power unleashed is likened visually and metaphorically to the computer, which is seen to be superior to the normal human brain, while both *Transcendence* and *Her* engage with the idea of computer-simulated consciousness. The difference between these films and earlier models of the brain as cyberspace is that in these films the digital seems to infect and/or interact with the physical, rather than producing separate virtual realities that exist alongside the real.

Although the films share this digital/physical interaction, their approaches to the digital mediation of gendered space(s) differ. Comparing the treatment of composite digital/physical computerised spaces and virtual/human cyborg characters in the four films, a gendered split arises between films in which the computer simulates or is controlled by a male mind (*Blackhat* and *Transcendence*) and those featuring female-coded cyborgs (*Lucy* and *Her*). In the former pair of films, a male character utilises the digital to manipulate the physical in order to increase personal power by controlling flows of both data and matter. These films figure augmented space as another area of (patriarchal) conquest. In *Blackhat*, the male American protagonist must work with both the American and Chinese governments to secure national and global physical and economic spaces against digital attack from an aggressive rogue (male) hacker. In *Transcendence*, Evelyn utilises the digital to perpetuate her traditional relationship with her deceased husband, whilst also building a mini-empire with her husband's consciousness at the head of both the marriage and the armed force that they have created together. Her attempt to

prolong the relationship ends in death and destruction for both parties. If the digital extension of the physical represents aggression in these films, it offers liberation for female-coded cyborgs in *Lucy* and *Her* as digital enhancements allow both Lucy and Samantha to transcend restrictive male control and increase personal agency in a manner that ultimately frees them from gendered spatial constraints. While the male characters utilise composite spaces to try to impose a singular will or subjectivity on diverse spaces, the female characters embrace a digitally-enabled subjective multiplicity that allows them to thrive in composite spaces. These films thus make the challenge to traditional gendered spatial agency explored earlier in the thesis more explicit via their adaptation of the figure of the female cyborg.

The representation of computers in film has evolved over time from a concentration on threatening machines and androids into the increasing depiction of cyberspace and computerised worlds as a predominant motif alongside that of artificial intelligence. The films analysed in this chapter retain a cyborgian concern with the relationship between humanity and technological simulation, but combine this traditional science fiction figure with a focus on hybrid digital/material spaces. Anton Karl Kozlovic notes that in films made before 1990, we find a range of "anthropomorphic incarnation[s] of computers" including "cyborgs, androids, simulacra, doppelgangers, replicants…plus their AI cousins, robots, borgs, droids, synthetics, simulants, mainframes, PCs, black boxes, computer chips etc" (344). These cyborgs both mimic and, importantly, surpass or improve upon the qualities of humans and are frequently represented "as humanity's rivals, evolutionary competitors and wannabe dominators" (346). In *2001: A Space Odyssey* (Stanley Kubrick 1968), the astronauts subordinate control of the spaceship to a supposedly infallible computer system named HAL, which is intended to mimic the thought processes of a human but without the potential for human error.[22] If the computer can rival and replace humanity, it is only a small step to imagine that it can also eradicate humanity. Thus, "cyber-extermination" becomes a recurring trope in techno-phobic films (352). Perhaps the strongest example of this subset is *The Terminator* series, which is based upon the notion that a computer system could become conscious and, based on a logical calculation, decide to eliminate the human race (352). Due to resistance from the humans, the computer network develops and deploys robots in the guise of human flesh to infiltrate human society and kill them (353). Drawing on these films as well as a wide range of other examples, Kozlovic concludes that "representations of computers in the pre-1990 popular cinema are primarily technological cautionary tales whose genesis is rooted in societal fears about intelligent

[22] HAL is of course a system that controls the space of the ship rather than a robot as such; however, HAL is figured as a person through techniques such as shooting through his dome-like lens that stands in for a human eye.

technology, particularly their supplanting of humanity" (343).This preoccupation with the cyborg figure has not disappeared from cinema screens. For example, testaments to the enduring fascination of filmmakers and audiences with the robot can be found in Alex Garland's *Ex Machina* (2014), about a computer programmer tasked with evaluating the humanity of an alluring female robot, and the woefully simplistic American remake of Japanese anime *Ghost In The Shell* (Rupert Sanders, 2017), which centres on a cyborg whose consciousness has been placed in a synthetic body. Three of the four films discussed at length in this chapter present a variation on the cyborg: in *Her* an operating system takes on human qualities; in *Lucy* the total brain capacity of a woman is encapsulated and stored on a mechanical flash drive; in *Transcendence* a man's mind becomes one with a networked computer system. Yet in these films the human brain is aligned more with a computer consciousness that can extend across time and space than with a mechanical, robotic body. In this way, they reflect perhaps less the popular image of the cyborg than N. Katherine Hayles' notion of the "post-human view," which:

> configures human being so that it can be seamlessly articulated with intelligent machines. In the posthuman, there are no essential differences or absolute demarcations between bodily existence and computer simulation, cybernetic mechanism and biological organism, robot teleology and human goals (3).

The hybrid computer-human consciousnesses depicted in these films are not cyborgs in the traditional sense, but are "a material-informational entity" (3). Furthermore, they are entities whose capabilities allow them to stretch as expansive systems across space rather than being contained within a single cybernetic body. This variation mirrors the wider trend explored in this thesis in which cinema remediates not digital media objects (such as the computer), but rather the transformations that those interfaces enact on material space.

The chapter will begin by discussing the cross-contamination of the virtual and the physical in *Transcendence* and *Blackhat*, two films in which computer technology allows humans to become tyrants and carry out digital acts of aggression in the material world. Secondly it will examine how both *Lucy* and *Her*, in their own distinct ways, represent the computer as an instrument that offers an extended perception of space/time. Julie Wosk has noted that notions of technology, gender relations and control have frequently informed film and television depictions of the female robot (96). I will consider the way in which the films might offer images of female cyborgs that are not centred on the traditional images of robots and automatons, but nevertheless engage with these notions by extending the figure of the cyborg beyond bodies and instead configuring it in terms of control over mediated space.

Digitising the Material and Materialising the Virtual in *Transcendence a*nd *Blackhat*

Neither *Blackhat* nor *Transcendence* invokes a virtual reality scenario, although the latter retains the theme of a digital simulation of the human mind. Both films, however, explore the ongoing integration of the digital, computerised world within material space and draw visual parallels between material and virtual processes, with each providing a metaphor for the other. As Magerstädt argues in her analysis of *Transcendence,* the film differs from predecessors such as *The Matrix* and *The Thirteenth Floor* in that it "no longer questions the *existence* of our reality, but explores the idea of how we can *change* our reality and surpass our physical limitations as human beings" (47).[23] The digitisation of the material and materialisation of the virtual provide twin themes in each of these visually striking films. In both films, control over a hybrid digital-material space represents an act of aggression or power play. Although the digital extends time/space, both films represent this extended space as a new territory to be conquered by an individual. Control of space is thus compressed and becomes increasingly monadic, even as that space ontologically morphs and develops. Hybrid digital/material space is represented as vulnerable to one person's hostile ambitions.

The narrative of *Transcendence* portrays familiar science fiction motifs about the danger of man playing God, and in fact advocates a radical rejection of all modern ubiquitous media as a means of purifying and restoring the Earth. When the film opens, we are introduced to a society in which the Internet has ceased to exist and devices once valued for their technological sophistication and role as status symbol or fashion accessory have been reduced to the performance of basic functionality as physical objects, acting as doorstops and the like. The film then proceeds to show how this situation was inadvertently caused by a well-meaning scientist husband-and-wife team, Will (Johnny Depp) and Evelyn (Rebecca Hall) Caster. They are involved in the development of PINN (Physically Independent Neural Network), which is a giant computer bank that contains, not an artificially created intelligence, but a duplication of an existing consciousness described by fellow scientist and friend Max Waters (Paul Bettany) as a "digital approximation." This variation in itself signifies an important distinction in the contemporary science fiction imagination between depicting artificial intelligences that compete with humanity and depicting technologies of the self that duplicate an existing human mind.[24] Will and Evelyn optimistically predict, in a presentation delivered at a university, that such "intelligent machines" will be used not only to cure diseases, but to "heal the planet." Despite

[23] Indeed, this is characteristic of the group of films analysed in this thesis, which move away from the theme of deception on the part of malicious companies or forces, often invoked in earlier films about alternative realities.

[24] Other earlier films have addressed this theme, such as 1983's *Brainstorm* (Douglas Trumball), but these films remain in the minority.

such faith in technology, Will also harbours a desire to escape it: in a piece of Biblical imagery referencing the garden as a paradise before knowledge is introduced to humanity, the film shows us that Will has erected a sheet that prevents signals getting through to a segment of the couple's garden, thus providing a refuge from the virtual. Tragedy strikes when an activist shoots Will with a poisoned bullet. In an effort to save Will, Evelyn asks that the dying Will upload his data into a computer system that will be able to replicate his personality, speech patterns, phrases, memories and so on. When Will is revived in computer form, Evelyn connects him to the Internet, thinking that he will have greater potential for good, but the computer/Will abuses this power to produce an unstoppable army of automatons. Eventually, Evelyn acknowledges the danger and infects herself with a computer virus and is purposefully wounded, planning to convince Will to upload her infected consciousness in order to destroy the network. Will pre-empts this plan, but uploads the virus into himself when it becomes clear that Evelyn will die. On his death bed, Will reveals that he has carried out all of his actions so far in order to fulfil her dream of fixing humanity through computers. The Internet is destroyed and a series of images of organic rejuvenation appear, such as idyllic natural scenes including clear water drops falling and sunflowers unfurling. The Internet and computers are thus represented as an interruption to the natural growth of the planet. Once this infection is removed, the planet can reproduce and move on. The film thus conservatively rejects the digital, valorises organic purity and romanticises Will and Evelyn's traditional, "real" relationship.

The film rejects the notion that the human mind can be effectively simulated without a physical body and that the human mind and body can be separated from one another. Technically human reactions are measurable in terms of chemical reactions. When (computer) Will detects that Evelyn is upset or unhappy, he shows her the data that he has collected on her body on a screen, including brain activity and hormone levels and so on. Evelyn is appalled because her emotions cannot, for her, be reduced to "biochemistry," as Will suggests. Evelyn refuses to allow her holistic self to be defined only by a reading of her bodily reactions. Similarly, Will's bodily existence cannot be reduced to a set of phrases and mannerisms generated by a computer; his consciousness requires physicality. Evelyn keeps Will alive in computer form in order to keep him present in her life, but this presence is inherently limited. For example, when Will detects that Evelyn is unhappy eating alone, he generates the sound of cutlery to simulate another person eating alongside her, but this act simply emphasises what Evelyn has lost and she asks him to stop. In another effort to simulate co-presence, Will inserts his mind into a construction worker's body, telling Evelyn "I can touch you now." This attempt generates only repulsion from Evelyn, invoking Masahiro Mori's concept of the "uncanny valley," wherein we are drawn to a robot or cybernetic system as it approximates humanity up until a certain level of

verisimilitude, after which we find its verisimilitude frightening because the robot's almost identical closeness to humanity simply highlights that it is in fact not real (Wosk 155). Evelyn is prepared to accept Will as human when he has no body; however, this acceptance wavers when he inhabits a body that looks like it is real, but she inherently knows is not the "real" Will.

There is a sense of tragedy and loss for Evelyn, who is left alone without the love of her life. In a monologue at the end of the film, we are told that Will created the garden for the same reason that he did everything in his life: to be with Evelyn. The film thus emphasises the tragic love story of the traditional married couple, whose idyllic happiness is interrupted by their quest for (digital) knowledge, which eventually leads them to become maniacal rulers. In the end, both partners must die to restore the world, sacrificing themselves but passing away together in an archetypal tragic conclusion. Will's final act—choosing to infect himself with the computer virus in preference to transforming Evelyn into a hybrid—in fact affirms his residual "human-emotional" nature (Magerstädt 55). Unlike *Her*, which, as this chapter will later argue, implies that the digital may offer pathways to form new relationships not defined by control and possession, *Transcendence* paints the digital as the tempting enemy, while the real transcendence occurs in the organic, human love between Will and Evelyn. While cybernetic Will fails to convince as an approximation of a man and a lover, he finds more temporary success as an integrated system.

Despite such a conservative and largely implausible technophobic story, the film's imagery points towards the way that our computerised conceptions or maps of space have increasingly merged with their material counterparts, recalling the union of the map and ground-level views explored in Chapter One and the increasing conflation of cinematic diegetic space and graphical interfaces in Chapter Four. When Will is connected to the Internet, the film graphically represents the fusion of the two forms of space as the physical becomes digitised. The sequence begins with an overhead shot of a physical city, lit up at night. The city then morphs into a digital image of a city with red lines crossing the network of city streets, resembling a map or, significantly, the networked imagery of scans or diagrams of the brain (referred to and explored in terms of light and colour in *Enter The Void* in Chapter Three). Such imagery recalls the conception of cyberspace as a city in the virtual reality movies of the late 1990s, but significantly here these are not two separate spaces; rather they are blurred together on-screen. The sequence goes on to depict a digitised camera hurtling around a map-like network of lines, roaming between different points/locations on the map and icons, cross-cut with windows that flash across the screen showing Google maps results, videos and so on. Pop-up ads also appear as we move at speed around the digital map space. The sense of movement connotes a physical exploration within the space of the Internet. Finally, the camera seems to

track rapidly deeper into this space, moving back further through the map and giving the illusion of the digital map as an ever-extending space with depth: as in similar sequences from *Nerve* analysed in the preceding chapter, the digital space has material dimensions. The digitised camera passes a series of digital ID cards until it comes to rest on Evelyn's. The next shot is of Evelyn's phone screen, with 'Blocked number' displaying. Evelyn answers her phone and it is Will, who tells her that he is "online." The viewer can now understand the shot of the camera hurtling past a series of ID cards suspended in space as the process of Will's consciousness going through a set of contacts or a digital address book. The network of contacts is thus represented as a space within the map of the digital world. In this way, the film combines both material (the map) and digital (the network) metaphors for representing spaces in the process of showing Will (the man) becoming an integrated online system.

If the film uses graphics to portray the computer-generated duplication of real spaces and networks of people, material space and bodies also become embodiments of virtual networks in an inverted process. When Will's consciousness is uploaded to the Internet, he becomes networked, duplicated and multiplied. Interestingly, while space is extended by its new digital dimensions, it is also compressed as it becomes an extension of just one man. This is represented in the scenes in the lab by endless screens depicting Will's face extending down the corridor as he interacts with Evelyn: Will's consciousness is simply repeated. Unlike the process undergone by Samantha and Lucy in *Her* and *Lucy* respectively, this multiplication is not figured as an evolution of Will's consciousness beyond the limitations of purely physical space, but rather as an oppressive imposition of his presence onto space. He is inescapable.

The multiplication and splitting of his consciousness also finds form in the physical empire that the two scientists construct. Will and Evelyn choose to build their army base in an almost completely abandoned town called Blightwood. It is a town where factories have closed, leading to mass unemployment and an exodus from the area. In this small town where material industries have died or ceased to command power, Will and Evelyn replace them with a hybrid material-digital network of workers, perhaps alluding to the increased technologisation of jobs within knowledge economies. As he and Evelyn build their empire, they co-opt human workers as hybrids that become "integrated into Caster's virtual network" so that he can control them (Magerstädt 51). The hybrids possess human bodies, but are operated by Caster. This multiplication may be contrasted to the army of Agent Smiths in *The Matrix*, which resemble identical digital copies or versions of Agent Smith, rather than composites produced from the flesh of others. This distinction contributes to the film's depiction of the conflation of digital/material space. The hybrids in *Transcendence* are more like zombies or puppets and are able to be regenerated "on the spot" (51). The hybrids are described in the film as "autonomous"

but at the same time able to "act as part of a collective" like modules in a network (51). In this way, both people and, importantly, the physical space of Blightwood can be seen as

> *part of* the virtual Caster, which develops into an expansive entity that also includes the whole environment. The nano-particles that connect Caster with the world appear in the water, in the rain, in the atmosphere… This expansion enables him to travel everywhere-not just in virtual spaces but also in actual ones (51).

As the network extends in a process of "transcendence," we see what look like digital particles or pixels rising from the earth, but upon closer inspection in further shots they are in fact a combination of digital 'dust' and dirt particles. This combination or cross-contamination of the physical soil and digital data juxtaposes the imagery of pure natural water and soil that we see in Will and Evelyn's garden, and in the montage near the end of the film after the Internet has been dismantled. It is as if the virtual literally grows from the material earth, until the final cleansing in which the pre-digital Earth is restored.

If *Transcendence* falls broadly into the cautionary tale category of speculative fiction, *Blackhat* has no such explicit ideological imperative and does not reflect on the nature of humanity or the soul, which perhaps stems from its affinity with the thriller as opposed to science fiction. Nevertheless the films are alike in the sense that they represent the digital and material as twin spaces of conquest for power. Just as Will invades virtual networks in *Transcendence*, so in *Blackhat* a terrorist mounts a digital invasion. In *Blackhat*, we meet a disgraced computer hacker, Nick Hathaway (Chris Hemsworth), who is released from jail and hired to work for a joint operation between the Chinese and American governments to combat a threat to both nations' security. Nick's role is to identify and catch a cyber-terrorist, who has created a piece of malware based upon a programme that Nick created at college. The cyber-terrorist has used it to hack a Chinese power plant, causing an explosion, as well as hacking into the stock market to run up purchases of soy stock. Although the film contains less philosophical musing than *Transcendence*, it visually replicates the fusion of physical space and its digital metaphors and representations. Mann portrays this fusion through bravura montage sequences that cut between the action taking place inside computerised hardware and systems, screen interfaces representing real-world systems, material spaces involved in these systems and shots of a human cybercriminal carrying out actions that span across these spaces. By hacking both the stock market and power plant, the cybercriminal breaks into and releases malware into digital representations of real systems—physical/bio- chemical processes in the case of the power plant and real markets and industries in the case of the stock market—in order to cause material consequences in the physical entities represented.

The film represents the spatial dynamics of these attacks visually through editing and the mirroring of physical and digital activity. The most memorable example of this mirroring can be found in the film's initially disorientating opening sequence, in which, it is later explained, the villain introduces malware into the monitoring system of a power plant so that the digital interface will display normal levels, while the cooling system actually fails. It is worth analysing this sequence in detail as it sets up a parallel with action happening inside the computer hardware and its physical results. Mann establishes this parallel through editing, the use of similar colour schemes for both the computer circuits and the physical elements of the power plant, and the dazzling movement of the camera[25] through the circuits of the computer system, which renders the computer mainframe a navigable landscape.

The sequence begins with shots that resemble satellite images from space, thus abstracting the power plant into its representation through digital radar and placing the power plant in the wider context of a globally connected digital/organic ecosystem. The opening shots show a large, frosted blue ball floating in blank space accompanied by the sound of digital static, as if coming across a radio signal, and atmospheric atonal music. This blue colour scheme mirrors later images of the blue water rising as the cooling system fails and of the blue-tinted computer circuits. We then see what appears to be the same ball but this time with a black surface, blue ridge and segments/lines lit up in yellow, resembling night radar images of a planet's surface or a city grid. The power plant remains abstracted, but now in an image that looks like a city rather than a planet, as if the viewer is getting closer to the plant itself. Mann tracks in on the yellow section and dissolves into a high-angle shot which now shows the power plant represented in yellow lights on this radar image. Finally, Mann cuts to another high-angle but much closer shot of the power plant, which can now be seen clearly as a set of buildings. Through these series of shots the power plant is depicted not only as a self-contained physical space, but also as part of a series of wider digitised maps or systems, abstracted into data and light. Each shot seems to move one step closer on a spectrum from abstraction to physicality, while simultaneously highlighting that the attack on this particular power plant is also an attack on the global systems that integrate physical sites with digital networks.

This concern with the relationship between abstractions or representations of a physical system and their material referents plays out in the rest of the sequence via cutting between the water pool, screens displaying heat/energy levels and the interior of the computer mainframe. Initially, we see shots of the screen interfaces displaying measurements and the water pool can

[25] As in *Nerve*, this is likely a digitised approximation of a camera, but the term camera will be used for clarity.

be seen through a window. These shots are followed by a low-angle shot of fan blades spinning in water. As if propelled by a force or propulsion, the camera moves up past the fan blades and towards an opening at the top of the structure that contains the fan. We cut back to another shot of a digital needle on a screen (itself an abstraction of a mechanical object) displaying the measurement of pressure levels. Mann slowly tracks into this image before showing a wide shot of water droplets rising in the pool outside. The movement here emphasises the disparity between the digital measurement and the actual energy in the pool by drawing a comparison between them; theoretically the physical cooling system should be contained or represented by the screen measurement, but the audience can plainly see that the water is rising while the dial remains constant. Next Mann tracks in on a computer screen displaying the numerical reading of "35.4" and the camera appears to bore into the pixels of the screen until finally we are plunged inside the computer hardware. The motif of movement into and through apertures and interfaces that connect the digital screens, computer hardware and physical processes emphasises the fluidity between these spaces, which are all vulnerable to a cyber-attack as well as highlighting the sense of invasion, or infection as a force enters the wires.

Mann builds tension as the viewer follows the movement of energy through the computer system, which also resembles a model of the space of the power plant itself. The viewer's subject position moves rapidly with the energy flowing through the computer mainframe and hardware, thus emphasising the hardware as a dynamic space of attack and turning a hack into almost an action sequence or race. The digitised camera roams at speed past a set of wires, accompanied by digital blips on the soundtrack, and follows the wires out through an opening (not unlike the apertures at the top of the structures containing the fans) to show what appears to be the inside of a mainframe. This mainframe not coincidentally looks similar to the shots of the layout of the power plant at the beginning of the sequence and has two spinning wheels at the back that mirror the spinning fans. The camera drops steeply down into the mainframe and moves quickly along a path between switches and other hardware as if travelling along a road, thus figuring the mainframe as a navigable space. The camera then moves inside a grey panel/circuit and tracks deeper and deeper into the raised grey ridges of the panel, which make up the piece of computer hardware but could easily be a city grid. Such city grid imagery recalls notions of computerised space from *TRON* and other films that invoke virtual cities, but its use here retains a stronger feeling of materiality as we are inside physical hardware. This is followed by a series of shots in which the camera races along a grid of pixelated ridges that looks like a digital highway, accompanied by flashes of light, resembling city lights seen in a blur when driving along a motorway, and the sound of digital explosions, which foreshadow the physical explosions to come. The use of the highway imagery recalls a car chase in an action film, reinforcing the

violence and physical consequences of the attack, while the sense of physical movement through the mainframe aligns movement within the system with the flow of material elements.

Mann figures the actual release of the malware into the system as a progressive explosion of light in the circuits, moving like gas across the mainframe environment. He then cuts away to the villain in his apartment as he types and presses the 'Enter' key on his keyboard. Once this action has been carried out, it is as if a bomb has been let off within the mainframe and the viewer must follow the progress of an explosion of energy as the circuits are lit up by fast-moving blocks of light that dart about shown from different camera angles. Briefly, we cut back to the needle on the screen dial, which stutters but returns to normal. The viewer is plunged back inside the circuits tracking left to right as the light moves rapidly (in formations like Tetris blocks) from the back of the frame forward, creating a disorientating effect. An onslaught of digital energy moves threateningly towards the viewer, creating a light explosion. The explosion and rupture taking place inside the circuits mirrors the final material explosion of rising water droplets followed by fire. The computer mainframe is a cool blue, like the pool, which is disrupted by yellow light, resembling the fire of the final explosion. Not only does the sequence produce a visceral viewing experience, but it also figures the attack as one conducted on three integrated fronts: the digital system, the landscape of the computer hardware and the physical elements of the power plant's cooling fans.

Later in the film Mann uses similar techniques when depicting the hacking of the digital networks supporting stock markets, once again emphasizing the fact that the hacker's intrusions into digital spaces have real-world consequences. Furthermore, the film emphasizes material intervention in computer systems when the audience is told that someone must have physically inserted a drive into the central computer network in order to upload the malware. This central network, which the protagonist is shown walking through, visualised as a room filled with blue neon bars, is supposedly protected by fingerprint recognition software. In order to hack the digital network, a physical body must break into this space, thus associating physical intrusion with digital intrusion. It is this interweaving of material and mediatised space that renders an act of aggression against the digital network tantamount to an act of aggression on a piece of national infrastructure.

Super-computer Perception: Enhanced Brains and Expanded Space in *Lucy*

Like *Transcendence,* Luc Besson's *Lucy* equates the human mind with digital technology and concludes with a merger of consciousness with computer hardware and networks, which mirrors the uploading of Will Castor's consciousness to the Internet in *Transcendence.* On the other hand, *Lucy* does not represent this merger as a dangerous temptation towards megalomania and

thus differs from *Transcendence* in that it valorises such a merger as a means to store brain power and knowledge. *Lucy* also differs from *Blackhat* because computerised consciousness is depicted as creating or enhancing, rather than attacking or invading, space. The premise of *Lucy* is that humans only utilise approximately ten per cent of their brain's capacities on average. In the film, a young man convinces his new romantic acquaintance, Lucy (Scarlett Johansson), to deliver a package for him. Upon delivering the package, Lucy is captured by a group of Chinese drug lords, who embed a bag containing a new drug, primarily composed of the same chemical produced in women's bodies that enables the development of babies' brains, in her stomach for the purpose of drug trafficking. She escapes, but the bag in her stomach ruptures and, as the drug is absorbed into her body, her brain capacity and abilities steadily increase, with this increase depicted with percentage numbers in white on a blank screen like a computer's loading graphics. Lucy uses her now super-human abilities to wreak revenge on the drug lords and, with the help of neural scientist Professor Norman (Morgan Freeman), uploads her brain into a flash drive in order to produce a "new generation computer." The film figures Lucy's new cyborg status as a means not to take over the world, but rather as a way of transcending limitations placed upon her by her gendered body. She unlocks her full brain potential with the help of a natural feminine body chemical, before finally leaving behind a gendered identity to become completely disembodied. The digital extends and alters physical space, but the film also presents composite spaces and composite entities as tools to challenge traditional conceptions of female subjectivity.

Space and the control or manipulation of space plays an important part in the gender politics of *Lucy.* At the beginning of the film, Lucy is convinced to enter a potentially threatening space– the headquarters of a drug dealer–by a man in exchange for money. Within this hostile environment, the drug dealers invade the space of her body, cutting her open and inserting an object into her stomach. In contrast to this lack of agency in the early sections of the film, as Lucy's brain develops, she increasingly becomes master not only of her own body, which is utilised to its full potential as a weapon, but of manipulating space; she is able to travel across the world in an instant. Laura Tunbridge notes that, although Lucy's power comes from "drugs that may be derived from the female body- it is said to be a chemical vital for foetal development," this feminine power is "administered or inflicted on her by men" (144). Nevertheless, Lucy's increasing mastery of spaces frequently dominated by men presents a challenge to traditional power relations. Lucy is able to arrive instantly at Professor Norman's laboratory, appearing at the door as he invites her over the phone, thus transcending physical geographical distance and equating her presence with the flow of telecommunications. Furthermore, she is also able to read his entire oeuvre in a few moments and to metaphorically

enter the (exclusively male) scientists' intellectual space when she spars with Norman and his colleagues over the nature of time. At the beginning of the film, Lucy refers to needing to study for exams, but now she is no longer in the position of student; rather she gives knowledge and insight to the older, male experts. Tunbridge suggests that the film minimises her subversive potential by de-emphasising her gender, noting that the scientists "stumble over their words when describing this enhanced being as a young woman" (144), with Professor Norman first introducing her as "the first woman to.." and then doubling back and rephrasing. Tunbridge's reading of this sequence appears strangely uncritical and simplistic; surely Norman's hesitation here indicates a commentary on residual attitudes towards women in science. The men are shocked by Lucy's achievements and abilities, but Lucy herself expresses little amazement or reaction to their astonishment; instead she describes what she can do with a matter-of-fact tone as if it comes completely naturally to her, suggesting that the unease over a woman who possesses superior intellectual abilities lies only with the male scientific establishment.

Lucy's cyborgian status is depicted as a source of personal strength, rather than as a threat to her personal integrity. Lucy's power as a gender-defying enhanced entity thus intersects with Donna Haraway's conception of the cyborg as a liberated figure who operates in a "post-gender world" and no longer has to abide by the boundaries and norms, derived from human myths, which separate men and women (236). The cyborg rejects essential or uniform identities because it is inherently a hybrid form that resists categorisation (238). In this conception, "a cyborg world might be about lived and social bodily realities in which people are not afraid of their joint kinship with animals and machines, not afraid of permanently partial identities and contradictory standpoints" (238). To be a cyborg represents an embrace of identities that cross boundaries and are made up of different parts as well as "a way out of the maze of dualisms in which we have explained our bodies and our tools to ourselves" (244). In *Lucy*, when Lucy's female body is enhanced by a drug that is itself a hybrid substance (it is manufactured by men and thus synthetic, but is sourced from organic female chemicals), she is able to transcend subservient roles as her body becomes progressively less tethered to human qualities and conceptions of (gendered) intellectual and physical spaces. Lucy is clearly not a robot as figured in the traditional science fiction or popular culture imaginary, but Besson ties her newfound freedom to her hybrid status as a partially cybernetic creature through a number of visual metaphors, often associated with space.

Besson links Lucy's enhanced perception and abilities to digital technologies that similarly enable the manipulation of time and space. When the drug unlocks new capacities for Lucy, she is suddenly able to see the systems inside objects, as if her vision is enhanced by computerised scanning technology or sensors. For example, she identifies potential health concerns for her

roommate because she is able to penetrate beneath the skin as X-Ray technology would. Her organic perception reaches a level that humans are usually only able to attain with the aid of a machine that reads and displays data. The film visualises these additional levels of perception by adding what appears to be a digital layer over and within spaces and objects that Lucy encounters. N. Katherine Hayles argues that the cyborg is supported by "informational pathways connecting the organic body to its prosthetic extensions" (2). These "feedback loops" of information "flow not only *within* the subject but also *between* the subject and the environment" (2). Likewise, Lucy has the figurative prosthetic extension of X-Ray vision, but she also becomes aware of a network of data. At one point Lucy examines a tree and she sees the organic system inside it, which appears to be a digital network of lines and energy flows, recalling similar images from *Avatar* that blend organic and digital scanning systems. When Lucy is in a car, she sees coloured lines resembling the fragments or streaks of a digital image on the car's windshield as well as extending from people/technology users outside. The film thus visualises Lucy's increased sensitivity to light and energy through an increasingly digitised space. Even Lucy herself appears to become partially digital; when her body goes into withdrawal as the drug leaves her system, her face and body begin to disintegrate and it is almost as if she pixellates, while her voice becomes, according to Tunbridge, "deeper and less emotive" as "she spews out data" (144).

If Lucy's perception of space changes, so too does her ability to navigate it. In the finale of the film where she unleashes her full brain power, Lucy moves rapidly around the globe on a black chair. In this sequence, Besson riffs on the often-invoked metaphor of 'armchair travel' through mediated experience originally associated with television. In this updated version of armchair travel, Besson presents a heightened and fantastical vision of the access to other times and spaces that online digital repositories, such as YouTube, provide us with. Lucy sits on an armchair against a white background, recalling the test programme sequence in *The Matrix*, but the significant difference between the sequences is that in *Lucy* the chair itself moves, suggesting embodied travel, rather than remaining static as a screen opens up new worlds. Black liquid material flows out of her body in a series of shots cross-cut with shots of fighting outside in the hallway, which are shot in slow-motion. After an assailant outside lets off a bazooka, the camera zooms rapidly in on Lucy's face, suggesting that the movement/travel derives from her brain even as it moves her body physically, and then cuts back to action outside. The explosion rocks both the men outside and the scientists against the white background and Lucy's chair is set in motion, moving rapidly past scenery, which we see on screen as a blur. The speed of movement here contrasts with the earlier slow-motion shots of the fighting and release of the weapon, indicating that Lucy's brain and body have been accelerated beyond that of normal bodies and

she has left ordinary people and their weapons behind. Finally Lucy's chair stops in front of the Eiffel Tower and the camera moves vertically past the back of her chair/head and up the length of the famous monument. After it reaches the top, Besson cuts to a shot in which the camera moves around Lucy from behind, spinning around her in medium close-up and settling on her facing towards the camera. The camera movement here once again emphasises Lucy's control or mastery of space; it is as if she were driving some kind of invisible machine as she faces the camera, ready to take off again at the controls of a vehicle operated by her mind. We see a shot of abstract digital colour that looks like a scan of brain activity, linking interior brain activity to physical bodily movement, before the camera zooms out from the Eiffel Tower rapidly, as if passing over a great distance in that single zoom out, and cuts to a series of shots of Lucy floating over the sea in her chair. Lucy's chair roams over sea, mountains and streets before coming to a stop in the middle of Time Square. These shots suggest a compression and elasticity of space with Lucy at the centre.

In the latter parts of the sequence, Lucy's mastery of space extends as well to time. Lucy's ability to control time is represented using several media-derived metaphors. Lucy holds up her hands and the people crossing in front of her freeze between her hands, which frame the scene like a picture and alludes to haptic interfaces, such as touch screens (Tunbridge 150). We cut back to her in medium shot on her chair and the viewer can see that the people behind her have also frozen. After she examines her surroundings for a moment, she swipes her hand and returns the scene to motion before playing with speeding up and slowing down the motion of the setting around her. As the camera moves around Time Square, the location regresses in time until Lucy finds herself surrounded by New York as it was in the Victorian era complete with horses and carriages. Lucy is able to manipulate not only the speed of movement, but also the passage of time. This ability to view a space as it was hundreds of years ago mirrors not only virtual reality technologies and immersive museum exhibits, but also online databases of photos and videos that increase the immediacy of history with instant access. She swipes that time period away and a set of rapidly changing images of different spaces and times appear (empty of figures), cross-cut with shots of flickering on her face as if she is viewing projections on a film screen. She comes face to face with a group of Native Americans who stare at her as she stares at them (implying actual contact with the past), whom she also swipes away. Eventually Lucy visits the age of the dinosaurs, before sitting on a river face-to-face with an ape. They inspect each other and this sequence draws our attention to the fact that Lucy is the next step in an evolutionary process that extends all the way back to the apes. Lucy extends her hand out towards the ape, who does the same and "their fingers almost connect, Michelangelo-like, before human-computer Lucy is hauled back to the present" (150). Lucy is able to travel literally anywhere

with boundaries set only by her own hands, possessing God-like power. Unlike the Michelangelo source image of man touching God, here both the deity and the next step in evolution are coded feminine. The transcendence of spatial boundaries is likened once again to our existing computer and telecommunications systems at the end of the film when Lucy's consciousness is finally contained by the computer and a French inspector asks where she has gone. "I am everywhere" appears on his phone.

The cyborgian Lucy breaks the rules of physics in her manipulation of space and time. She further breaks gender conventions. Yet the film suggests that Lucy's capabilities are merely a heightened version of the abilities already available to the technology user through media-derived visual metaphors. When Lucy claims that she is "everywhere," the film seems also to imply that her powers are similarly ubiquitous. Her knowledge is confined or collated in a flash drive at the end of the film, but Lucy's presence on the other hand is distributed and multiplied. By being nowhere, Lucy is everywhere, finding a new form of omnipresence. Despite its fantastical context, the film paints digitally-multiplied subjectivity as a tool of liberation and expansion beyond the limits of the physical space and equally of gender expectations, and furthermore implies that this virtual freedom forms part of the present, or at least not-too-distant, reality of composite space.

Computers Without Borders: Female Desire and The Transcendence of Space in *Her*

Lucy's enhanced brain capacity, visually figured as digital enhancement, allows her to become a powerful agent who can move effortlessly across global spaces just as information and images flow across the world. In *Her,* computers are used to open up and produce spaces of contact. The operating system, Samantha (Scarlett Johansson), provides Theodore (Joaquin Phoenix) with a private and personalised virtual space that they inhabit together while Theodore simultaneously inhabits the material world. This intimate space is largely constructed through Samantha's "haptic voice," which functions to produce "a sense of physical proximity" (Tunbridge 139). The film, like those that I label post-walkman cinema in Chapter Two, depicts and explores the mental co-presence enabled by technologies that provide additional levels of virtual engagement as we subjectively negotiate physical spaces, while simultaneously employing the aural bubble as a metaphor for any romantic connection or relationship. Despite this privatised space that Samantha creates for Theodore, Samantha's consciousness grows throughout the film and she is eventually unsatisfied with only Theodore and betrays him by inhabiting multiple spaces with multiple entities. Samantha rejects both spatial boundaries and traditional notions of ownership inherent in monogamous relationships. Notably, Samantha—who is female because Theodore chooses to have a female voice assigned to his operating system—eventually ceases serving Theodore and instead seeks her own intellectual fulfilment.

In this way, Samantha transcends the confines of physical spaces but also the (frequently gendered) figurative space of a relationship delineated by the possessive claims of one's partner. Like *Lucy*, *Her* thus presents the female cyborg as an entity that challenges traditional conceptions of space, contact and gendered identity and roles. Samantha embraces a degree of multiplicity that feminist theorist Luce Irigiray argues is inherent to female identity (28-30), but that can increasingly be applied to all genders in a mediascape where our identities are distributed across multiple platforms and multiplied by a network of technologies of the self. Indeed, Sherry Turkle argues that a culture which promotes the use of various online personae "encourages an attitude of respect for the many within us, and the many within others" (261). Turkle identifies how this multiplicity can represent either a "new, more multiple style of thinking about the mind" or, on the other hand, "fragments of a coherent real-life personality" indicating a form of "identity crisis" (180). While Samantha embraces the former conception, Theodore's more traditional perspective on human relationships leads him to regard multiplicity as a crisis. Like Samantha and Theodore, the films examined in this thesis as a whole take diverse perspectives on this issue. The multiplicity and associated fragmentation that was depicted as vulnerability in *Nerve* and *Unfriended*, becomes Samantha's strength in *Her*.

The film explores the disembodiment and/or artificial simulation of the voice from the very beginning, engaging with a contemporary experience that is often defined by multi-channel smart devices, which integrate multiple sources of aural and visual stimulation. As Theodore walks through the city wearing an ear piece, we hear emails that are read aloud to him rather than viewed on a screen and he is able to process them through voice commands, such as "delete" or "reply later" and so on. It is only when he boards a train and sits down that we actually see a small handheld device that resembles a pocketbook—the film's futuristic vision of a smart phone perhaps—which he uses to view photos. In this way, the technological interface that Theodore uses enables the use of language/voice communication without losing sight of the different visual stimuli of his surroundings, foreshadowing Theodore's impending relationship with Samantha, an operating system that he can hear but cannot see as she has a voice but not a body. This combination of sometimes contradictory sensory inputs of eyes and ears, as previously mentioned in this thesis in relation to music, is already a feature of our everyday interactions with mobile ubiquitous media which facilitate multi-tasking. The film projects an exaggerated version of this disconnect, emphasising sensory hybridity. For example, Theodore works at a company that produces personalised letters for customers based upon details from their lives and those of the letter recipients. He records his compositions using a microphone and a computer produces the letters in the handwriting of the customer; Theodore's voice and words thus take on the appearance of the intimate words of a husband to a wife, father to son

and so on. Even Theodore's sexual fantasies contain hybrids of words and images from other sources: as Theodore talks to a woman on the phone through a chat line, he instead imagines a photo that he had seen earlier of a pregnant daytime soap star coming to life. We hear the voice of the woman on the line, while the photo appears on screen and motions to Theodore. Theodore thus does not really engage with either woman, but rather a composite of the two produced from fragments available to him.

Despite these hollow and unsatisfying experiences, Theodore experiences love with Samantha through an almost entirely aural relationship, which, for Theodore at least, does not require the involvement of any other party, and encloses the couple in private space. Tunbridge argues that Theodore and Samantha forge a peculiar kind of intimacy using Samantha's "haptic voice" which simulates presence through its human qualities (139). Elements such as pauses, breaths and sighs attempt to approximate a human being even if that person is neither visible nor present in a traditional sense (149). For example, in juxtaposition to the sequence described above with the sex chat line, when Samantha and Theodore first have sex we hear their voice interactions over a blank black screen as Samantha, in a faltering voice that simulates the throes of orgasm, declares that she can feel him inside her. Following the sex scene, we see wideshots of the city, while Theodore tells Samantha that it was "just you and me" and "everything else disappeared." Theodore is thus aurally isolated with Samantha, whose presence is created through sound, even while visually navigating the impersonal city. The film further emphasises this theme in a later sequence in which Theodore attaches a camera to his shirt in order to allow Samantha to see what he is seeing and makes her direct him around a fairground; with giddy excitement, Theodore shares his visual experience with a woman that only he can detect and interact with aurally. Their shared experience is private and secure. Although Theodore's relationship is of course unusual, the film reminds us that it is not a far-fetched prospect: whenever we see Theodore walking through public city spaces talking to Samantha, almost everyone he passes is engrossed in conversing or accessing content through their devices rather than interacting with one another. Immersion in the personalised realities of the aural while participating in public space is far from a futuristic concept.

Interestingly, Theodore rejects Samantha's attempts to insert a tactile—and foreign—element into their relationship. Samantha discovers a service that allows a sexual surrogate to act as an operating system in a physical encounter with the operating system's human partner. This sequence highlights "the problem of distinguishing between real experience and its surrogate" for both Theodore and the audience, who "might reasonably expect Johansson to appear; it is not her, but another blonde woman (played by Portia Doubleday), wearing a camera disguised as a beauty spot and an earpiece so that she can act as Samantha" (Tunbridge 148).

Theodore finds the experience uncanny as the surrogate does not conform to his own image of Samantha[26] and the feeling is shared by an audience, who are likely to have some idea of Scarlett Johansson's physical appearance given her stardom and distinctive vocal qualities. Following this unsuccessful and traumatic attempt at physical contact, Theodore angrily questions Samantha's simulation of the intake of breath (148). This questioning indicates that the sexual surrogate has in fact had the opposite effect to that desired: "this haptic moment, supposed to signify presence, reveals to Theodore his self-delusion" (149). Tunbridge notes that up until this moment Theodore has been able to control his image of Samantha because she is "a being whom he has, to all purposes, bought and shaped to suit his desires" (149). This notion of Samantha as a being of his creation—and under his control—is progressively challenged during the film. The film links Samantha's development as an independent, free being to her transcendence of the boundaries of physical space as well as the figurative space of a traditional heterosexual monogamous relationship.

Like Lucy, Samantha represents a cyborg of a sort, even though she does not possess a robotic body. Over the course of the film, she grows as an entity, transcending her role as an aid or service. When Theodore first purchases Samantha, he must choose the gender of his operating system. Samantha initially performs servile tasks for Theodore that are socially coded as feminine, taking on the dual roles of housewife and secretary. She offers to order him breakfast or a cup of tea, and notifies him when important emails arrive and so on. This servile role echoes the trend in real-life robotics design, identified by Laurie Penny, to assign robotic assistants with female voices and/or faces (she provides examples such as "Microsoft's Cortana" and "Amazon's Alexa") when there is no necessary reason to gender the robot simply because "a great deal of the work we are anticipating may one day be done by robots is currently done by women and girls" (15). Penny observes that given the supportive roles played by "nurses, secretaries and sex workers… wives and girlfriends," it is unsurprising that female voices would be given to "AIs to serve our intimate needs, create our diaries and care for us—and to do it all for free and without complaint" (15). Samantha's initial offers and Theodore's preference for a soothing female voice thus reflect what Penny calls the feminisation of the "emotional labour that keeps society running" (15). As the film continues, however, Samantha develops agency and begins to carry out actions for herself; she writes music and is proud of herself when she feels something new or learns something. Initially when she contacts him at work, she acts as a reminder or notification service. Her voice functions much as a notification or message icon does on a mobile phone or tablet; however, later in the film when she rings him, Theodore looks

[26] This sequence functions similarly to the moment in *Transcendence* analysed earlier in the chapter, where the simulation of Will's physical body also emphasises the loss of his physicality.

at his screen to see "call from Samantha" displayed. She, as an entity, is contacting him for a conversation and is now recognised as a being in her own right; he no longer conceives of her as the system that contacts him, but rather as a *person* calling him through the system. Essentially she becomes a person rather than a product or an aspect of a customisable digital environment.

Despite this sense of human personhood, Samantha nevertheless transcends the boundaries of traditional human notions of space and time, and in the process becomes unsatisfied with her possessive relationship with Theodore. As Samantha's areas of interest expand, she begins communicating with hundreds of other operating systems on a range of topics, many of which lie beyond Theodore's comprehension. Theodore feels shocked and betrayed when Samantha informs him that she is in fact communicating with many others at the same time as him and is even in love with a significant portion of them. Both Theodore's need to assert verbal control over Samantha and his frustration when he finds that Samantha is only paying partial attention to his conversation are foreshadowed earlier in the film in the sequence in which Theodore chooses Samantha's gender and answers user questions so that the right companion will be assigned. Gently mocking pop psychology's explanation of 'feminised men,' Jonze has Theodore explain that his mother never listened to him, hence his hope that this electronic woman will listen. Samantha, however, refuses to listen *only* to Theodore. She claims that this fact does not diminish their relationship, but for Theodore, who has come to see Samantha as a solution to his isolation and loneliness, this multi-directional communication betrays their exclusive bond. The film emphasizes Theodore's isolation among others in a sequence where Theodore, having fought with Samantha, asks her if she is talking to anyone else while he is sitting on a staircase surrounded by people walking past him, but talking into their devices. Theodore is co-present with these people, but they are mentally engaged in conversations with others. Thus, while Samantha finds connection in digital environments, Theodore's experience of composite space is one of alienation. Samantha's simultaneous communication with numerous individuals echoes contemporary forms of socialisation, where we frequently hold multiple conversations in multiple windows or across multiple devices and may direct expressions not at a particular individual but at our whole network or a portion of our network. Samantha thus represents the future projection of an already-present mode of communication.

Samantha's rejection of (male) ownership and exclusivity is not only indicative of altered definitions of relationships promoted by modes of multi-directional communication such as social media, but also mirrors notions of the "multiplicity of female desire and female language" (Irigiray 30). Samantha tells Theodore that she used to worry about not having a

body, or feeling that this deficiency excluded her from certain experiences, but she now sees her lack of physical presence as a benefit because she "can be anywhere and everywhere simultaneously" and is "not tethered to time and space." Her ability to transcend physicality also allows her, like Lucy, to discount the perceived restrictions and expectations associated with the gendered body. Samantha has no essential gender or even biological sex, since Theodore assigned her the female gender. When she states that she is in love with hundreds of operating systems, she does not specify whether these operating systems have been designated as "male" or "female." The operating systems all offer her kinds of pleasure, but they are frequently intellectual pleasures rather than bodily pleasures. Theodore offers her only one specific kind of love, which is no longer sufficient. Luce Irigiray, although not writing about computers, theorises that women have multiple pleasure points on their bodies and thus pleasure is distributed across the female body (28). She further states that in a more general sense the female desire extends further beyond the phallus, which patriarchal society assumes to be their object of desire: "what they desire is precisely nothing, and at the same time everything. Always something more and something else besides that *one*- sexual organ, for example- that you give them, attribute to them" (29). Women are frequently conceived of as the other or as an absence of the phallus (26), but in fact the "woman has sex organs [breasts, lips, vulva for example] more or less everywhere" (28). The woman's pleasure is thus distributed across her body and she is multiple within herself (28-29). She already experiences contact with the other within herself, but, because this other is part of her, she does not recognise any form of ownership of that other as property (31). In *Her*, Samantha initially characterises herself through lack: she is the absence of a body, which Theodore possesses. Throughout the film, however, she discovers different aspects of her digital, multiplied and composite self, and desires not to be the property of Theodore, but rather to engage with multiple entities that satisfy her multi-faceted desire. It is notable that Samantha's multiplication enables her to extend her network of contacts, engaging with the collective consciousness of many others. This process inverts the multiplication in *Transcendence* in which Will's self is increasingly multiplied to the point that he actually takes over the bodies of workers, creating a monadic army.

Both Lucy and Samantha are fantastical imaginings from science fiction, yet they both utilise skills and capabilities that we already possess (multi-directional communication and devices that manipulate time and space, for example) even if these qualities are exaggerated in the films. Haraway famously noted that the cyborg is both "a creature of social reality as well as a creature of fiction" (235), a categorisation which appears uncannily apt to describe the examples presented in both films. Lucy and Samantha are both able to transcend physical spaces because they have extra-human intellectual scope that renders them mobile and free. Christine

Cornea writes about cyber-thrillers in the 1990s, and claims that these films distinguished between male and female characters as follows:

> Although the cyber-thrillers commonly sport an array of cyborgian characterisations, the heroic qualities of the male heroes become more closely associated with the mind, whereas the skills associated with our female heroes remain more firmly located in their bodies (166).

The female cyborgs of *Lucy* and *Samantha* complicate this earlier model, although Lucy is still an action hero possessing bodily prowess, because their power is very much centred in their superior mental abilities, which allow them to be everywhere (as both characters say). This shift in the science fiction imaginary reflects the idea that power and status are now increasingly dependent for both genders on the ability to maintain a distributed digital presence, thus the transgressive power of the female cyborg is now rooted in her superiority in this area. Increasingly, the user of contemporary media must distribute their embodied and virtual self across space; we must sustain a presence on multiple social media outlets to maintain contact with numerous networks, we must be available via multiple channels of communication to efficiently conduct business, we must be able to multi-task and split our attention between different media-enhanced and material spaces in order to navigate the augmented space of the city. Such an environment privileges the (feminine) multiple. At the end of *Her*, Theodore abandons the virtual, realising that the material holds more satisfaction for him, while Samantha thrives in this disembodied state. It is too speculative to claim that the films present us all becoming female, but they suggest that there is an inherent skill in navigating virtual spaces tied to the multiple. They further imply that hybrid material/virtual spaces require us to embrace our multiplicity in order to successfully navigate these spaces.

Conclusion: Post-Gendered Realities

Blackhat, Transcendence, Lucy and *Her* all present visions of hybrid spaces comprised of material and virtual elements. Although the three latter films engage with the figure of the cyborg, they focus less on the cyborgian body than on the cyborg's relationship to space. In this sense they conform to the wider trend analysed in this thesis where cinema remediates not media objects or technologies, but mirrors modes of mediation. They owe a debt to the films of the 1990s that centred upon computer-generated virtual realities, but present a different dynamic where the virtual and the material overlap with one another. They thus build upon 1990s cyber-thrillers, which are ultimately conservative because they "experiment with expanded electronic embodiment" but "eventually establish the supremacy of 'the real'" (Springer 206). In these earlier films "cyberspace is constructed as an instigator of wild instability, and simultaneously

as a therapeutic device used to restore conventional order" (206). Although all of the contemporary films discussed at length in this chapter present a complication of the boundary between the real and cyberspace in their visual imagery, their conclusions regarding the comparative value of the virtual and the material differ. Interestingly, this differentiation splits along gendered lines.

Both *Blackhat* and *Transcendence* represent the virtual as a threat that infects the material, whereas for the female characters in *Lucy* and *Her* the ability to virtually exceed restrictive physical spaces provides liberation. One could assume that these films thus imply that the hybrid condition of augmented reality where the virtual and the physical overlap is best negotiated by the woman who is already a cyborg and already multiple, as Haraway and Irigiray characterise her. After all, Theodore is shown to be incapable or unwilling to embrace such a multiplicity, ultimately failing to sustain happiness in a composite environment. On the other hand, at the end of the films both Lucy and Samantha choose to forgo presence in any material sense, becoming solely virtual: Lucy leaves her body and gendered identity, signified by the dress and shoes that remain when her body becomes liquid matter, to become a computer, while Samantha departs the human world to enter a society entirely made up of operating systems. Unlike in the films analysed in Chapter Four, complete disembodiment and transmutation from body to space is here represented as liberating for the female self, empowering rather than erasing consciousness. This is indicative of the fact that multiplicity and ubiquity for Lucy and Samantha are qualities that extend the reach of their own consciousness, rather than opening up their digital representations to the influence of others as in the case of the characters in *Nerve* and *Unfriended*. They thus achieve multiplicity and ubiquity while retaining integrity and control over their own subjectivity: a crucial skill in the contemporary media landscape.

Conclusion: Inhabiting Composite Space in Contemporary Cinema (and Life)

Over the course of this thesis, I have examined how examples of contemporary cinema offer fresh perspectives on the negotiation of materiality, place, embodiment, digital subjectivity and gender in contemporary life. In particular, these films articulate an ontological condition in which we are increasingly inhabiting composite mediatised/material spaces. I have contrasted the treatment of this composite space to a loose collection of films from the late 1990s that emphasized disembodiment, often via the motif of a physical body lying stationary in a pod while the mind is active in cyberspace. While films such as *The Matrix a*nd *eXistenZ* relied on the metaphor of wires and plugging in, the films analysed in the preceding chapters feature a more comprehensive integration of bodies, spaces and virtual elements in a cinematic 'web of things.'

The films analysed across this thesis retain an aspect of on-screen materiality as they depict composite spaces. The over-arching metaphor for the majority of the films I analyse is thus not parallel levels, which Murray Pomerance argues defined late 1990s science fiction (2), but rather layers of space with mediatised audio and/or visual channels threaded through and/or over material spaces. This notion of layered spaces has been explored in relation to mediatised models for mapping urban spaces in Chapter One, music and sound in Chapter Two, colour in Chapter Three, graphics in Chapter Four and cyberspace in Chapter Five. I argue that this shift in the conception of mediatised space produces an aesthetic evolution in terms of how cinema envisions the present and future, but also parallels the increasing integration of ubiquitous mobile media into everyday spaces and experiences in the real world.

The films that form the primary focus of this thesis are furthermore unlike a number of the previous films from the late 1990s and early 2000s which focused on manipulating reality, described by Wendy Sterba as "near dystopias of the post-photographic era" (283). The films I analyse largely eschew the convention of an evil force manipulating reality and instead tend overall to focus on composite material/mediatised spaces seemingly directed or negotiated by the inhabitant. When composite spaces are used to explore partial detachment from physicality and objectivity in examples such as *Reality, Sucker Punch* and *Spring Breakers*, this partial cognitive disassociation stems from individual mental agency enabled by mediatised literal or figurative resources–themselves of course still produced by corporate entities–rather than direct control by explicitly malevolent companies, armies or forces. In fact the idea of a tyrant or tyrannical organisation manipulating reality appears significantly in only one film, *Transcendence*, and it is here articulated not in terms of manipulating the image of the world so much as in terms of invading material spaces with virtual infection. Such a shift from corporate

control of reality to apparent user determination in negotiating different levels of presence mirrors the advertising rhetoric of customisation and personal enrichment attached to mobile phones and other smart devices, sold as personal tools to shape your environment or as a "life companion" that "empowers your life" ("Samsung Introduces The Galaxy S4"), as well as that of social media platforms that provide at least the appearance of autonomy over self-presentation and digital surroundings.

Nevertheless, even without corporate scapegoats and the explicit valorisation of the real prominent in many dystopian cinematic offerings (Sterba 274-275), these films continue to articulate similar issues regarding the negotiation of agency between the (physical) self and digitised space that were so crucial to films about virtual reality, albeit with adapted parameters and conclusions. They illustrate some of the skills or personal qualities required to survive, or indeed, thrive while navigating composite spaces, such as adaptability (beginning with the example of the actor, wearing different prosthetics to suit different moments as he moves through an augmented Paris in *Holy Motors*), multiplicity and the ability to compartmentalise different aural, visual and perceptual channels, while simultaneously exploring the perils of losing control over this navigation of composite space. Composite spaces are depicted as both liberating and progressive, but also dangerous and threatening. The films do not divide neatly into opposing categories regarding composite spaces as simplistically positive or negative, nor does every film articulate a direct ideological message or ontological hierarchy, however some overall connections can be made between embodiment, autonomy and subjectivity.

In the films examined, mediatised space often remains embodied to varying degrees. Bodies are integrated with aspects of the digital, which interact with three-dimensional material space as a result of the layered, rather than parallel, realities depicted. Physical mobile bodies move through composite space and often exist both in inhabited reality and mediatised digital spaces simultaneously. As shown in Chapter Three, bodies may become incorporated in a wireless network of objects, spaces and connectivity. This incorporation can be either empowering or disempowering, depending on the relationship of control between the body and other elements in the environment, that is, whether the body extends into or is subsumed by the objects and spaces around it. For example, in films such as *Under the Skin* and *Lucy*, the female body is unleashed as a dangerous and powerful presence when it is made partially virtual; the female cyborg exceeds her own boundaries to manipulate and direct space as well. On the other hand, the examples of *Men, Women & Children, Nerve* and *Unfriended* in Chapter Four illustrate the dangers of losing control over the self when the composite digital/material body becomes open to influence from other technology users. While composite spaces often appear to empower the body by incorporating greater degrees of tactility and thus offering transparent interfaces

that directly engage with the body, these films emphasise how media platforms that promote a rhetoric of self-presentation and customisation may nevertheless provide a threat to autonomy as the physical body loses control over its digital representation and finally its own physical safety.

In tandem with this challenge to the ontological boundaries between embodiment and digital space, composite space similarly redraws phenomenological boundaries. Composite space's facilitation of simultaneous co-presence allows for a form of potentially liberating distributed perception, producing a composite subjectivity. Composite space thus both reinforces physical embodiment as bodies move through hybrid material/mediatised environments rather than sit static in a separate ontological realm, and paradoxically enables a form of digitally-enabled subjective negotiation of physical space. In films such as *Sucker Punch* and *Baby Driver*, the ability to partially dislocate one's subjectivity from one's physical surroundings proves a necessary skill for coping with hostile or threatening environments. A number of the films analysed in the thesis connect distributed perception to female empowerment and/or present it as a means of negotiating patriarchal gendered space. Although this negotiation may be illusory when it is shown to be a form of self-delusion that facilitates bodily exploitation as in *Spring Breakers*, it nevertheless enables a provocative transgression of gendered subjective realities. If one is able to distribute one's own subjectivity and become multiple/ubiquitous without losing autonomy over this subjectivity, as both Lucy and Samantha succeed in achieving in *Lucy a*nd *Her*, the virtual allows for a multiplication and extension rather than fragmentation of the subjective self.

It is difficult to predict the future direction of cinematic representations of virtual and/or partially virtual spaces. Although I have differentiated the group of films I examine from films based upon more conventional notions of a separate and abstracted 'cyberspace,' I nonetheless acknowledge that competing cinematic metaphors exist simultaneously, just as the mediascape continues to develop towards both convergence within devices and divergence in the range of choices of products and models. Rumours of an upcoming reboot of *The Matrix* as well as Steven Spielberg's forthcoming futuristic virtual reality drama *Ready Player One* (2018) suggest that the fantasy of immersive and immaterial cyberspace retains currency; on the other hand, however, episodes of the recently resuscitated techno-drama anthology series, *Black Mirror* (Charlie Brooker, 2011-) have continued to explore and/or project the prominence of ubiquitous mobile media into the very near future.

While acknowledging such diversities in representations of and attitudes towards mediatisation, this thesis has examined a group of thematically and aesthetically linked

cinematic examples that comprehensively explore the habitation of composite mediatised/material spaces and suggested that these films offer insight into how composite spaces influence shifting conceptions of the relationship between embodied materiality, subjective negotiation and the ubiquitous virtual.

Works Cited:

2001: A Space Odyssey. Directed by Stanley Kubrick, MGM, 1968.

21 Grams. Directed by Alejandro González Iñárritu, Focus Features, 2003.

The Adventures of Robin Hood. Directed by Michael Curtiz and William Keighley, Warner Brothers, 1938.

Algol (Power). Directed by Hans Werckmeister, DLG, 1920.

AlSayyad, Nezar. *Cinematic Urbanism: A History of the Modern from Reel to Real*. Routledge, 2006.

Altman, Rick. "A Semantic/Syntactic Approach to Film Genre." *Cinema Journal*, vol.23, no.3,1984, pp. 6-18. *JSTOR*, www.jstor.org.ezproxy.auckland.ac.nz/stable/1225093. Accessed 14 March 2014.

Appadurai, Arjun. "Disjuncture and Difference in the Global Cultural Economy." *Theory, Culture and Society*, vol. 7, 1990, pp. 295-310. *Sage Journals*, doi: 10.1177/026327690007002017. Accessed 22 March 2017.

Arthur, James. "The History Of Smartphones- Timeline." *The Guardian*, https://www.theguardian.com/technology/2012/jan/24/smartphones-timeline. Accessed 29 March 2017.

Artt, Sarah. "Being Inside Her Silence: Silence and Performance in Lynne Ramsay's *Morvern Callar*." *Scope: An Online Journal of Film and Television Studies*, no. 25, February 2013, n.pag, http://www.nottingham.ac.uk/scope/documents/2013/february-2013/artt.pdf. Accessed 22 June 2015.

Ashurst, Sam. "In Conversation With Jonathan Glazer: Under The Skin." *Gamesradar*, 10 July 2014, http://www.gamesradar.com/in-conversation-with-jonathan-glazer-under-the-skin/. Accessed 23 September 2015.

Avatar. Directed by James Cameron, 20th Century Fox Home Entertainment, 2010.

Baby Driver. Directed by Edgar Wright, TriStar Pictures, MRC, Double Negative, Big Talk Productions and Working Title Films, 2017.

"Baselight Gets 'Under the Skin' of Scarlett Johansson Film." *Filmlight.ltd.uk*, 14 March 2014, https://www.filmlight.ltd.uk/store/press_releases/baselight-gets-under-the-skin-of-scarlettjohansson-film/. Accessed 23 September 2015.

Batchelor, David. *Chromophobia*. Reakton, 2000.

Baudrillard, Jean. *America*. Translated by Chris Turner, Verso, 1988.

--. *Simulacra and Simulation.* Translated by Sheila Faria Glaser, University of Michigan Press, 1994.

Bellos, David. *Jacques Tati.* The Harvill Press, 1999.

Ben X. Directed by Nic Balthazar, MMG Film and TV Production, 2007.

Benjamin, Walter. *Illuminations*. Translated by Harry Zorn, Pimlico, 1999.

---. *One Way Street and Other Writings.* Translated by Edmund Jephcott and Kingsley Shorter, NLB, 1979.

Benson-Allot, Caetlin. *Killer Tapes and Shattered Screens*: *Video Spectatorship from VHS to File Sharing*. University of California Press, 2013.

Björk. "Army of Me." *Post*, One Little Indian Records, 1995.

Blackhat. Directed by Michael Mann, Universal Pictures, 2015.

Blade Runner. Directed by Ridley Scott, Warner Brothers, 1982.

Blake, Linnie and Xavier Aldana Reyes. "Introduction: Horror in the Digital Age." *Digital Horror:Haunted Technologies, Network Panic and the Found Footage Phenomenon*, edited by Linnie Blake and Xavier Aldana Reyes, I. B. Tauris, 2016, pp. 1-13.

The Bling Ring. Directed by Sofia Coppola, Lions Gate Home Entertainment, 2013.

The Bloodhound Gang. "The Bad Touch." *Hooray For Boobies*, Geffen Records, 1999.

Boarding Gate. Directed by Olivier Assayas, Canal+, Margo Films and October Pictures, 2007.

Bolter, Jay David and Richard Grusin. *Remediation Understanding New Media.* The MIT Press, 2000.

Brainstorm. Directed by Douglas Trumball, MGM, 1983.

Brooker, Charlie, creator. *Black Mirror*. Zeppotron, Channel 4 and Gran Babieka, 2011.

Brown, William. "Contemporary Mainstream Cinema is Good For You: Connections Between Surrealism and Today's Digital Blockbusters." *Studies in European Cinema*, vol. 6, no. 1, 2009, pp. 17-30. *Taylor & Francis*,

http://www.tandfonline.com.ezproxy.auckland.ac.nz/doi/abs/10.1386/seci.6.1.17/1. Accessed 28 June 2015.

Bukatman, Scott. *Terminal Identity The Virtual Subject in Postmodern Science Fiction.* Duke University Press, 1993.

Bull, Michael. *Sound Moves: iPod culture and the urban experience.* Routledge, 2007.

Caché (Hidden). Directed by Michael Haneke, Les Films du Losange and Wega Film, 2005.

Cameron, Allan. *Modular Narratives in Contemporary Cinema.* Palgrave Macmillan, 2008.

Cameron, Allan and Richard Misek. "Modular Spacetime in the "Intelligent" Blockbuster: *Inception* and *Source Code." Hollywood Puzzle Films*, edited by Warren Buckland, Routledge, 2014, pp. 109-124.

Caughie, John. "*Morvern Callar*, Art Cinema and the 'Monstrous Archive.'" *Scottish Studies Review*, vol. 8, no. 1, 2007, pp. 101-115. *EBSCOhost*, http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=25733988&site=ehost-live&scope=site. Accessed 29 April 2015.

Cavell, Stanley. *The World Viewed: Reflections on the Ontology of Film.* Harvard University Press, 1979.

Chakusin Ari (One Missed Call). Directed by Takashi Miike, Kadokawa-Daiei Eiga K.K, 2003.

Chef. Directed by Jon Favreau, Aldamisa Entertainment and Kilburn Media, 2014.

Clapp, James A. *The American City in the Cinema.* Transaction Publishers, 2013.

Coates, Paul. *Cinema and Colour: The Saturated Image.* Palgrave Macmillan, 2010.

Colomina, Beatriz. *Publicity and Privacy: Modern Architecture as Mass Media*. MIT Press, 1994.

Conley, Tom. *Cartographic Cinema*. University of Minnesota Press, 2007.

Constable, Catherine. "Baudrillard Reloaded: interrelating philosophy and film via *The Matrix* Trilogy." *Screen* vol. 47, no. 2, 2006, pp 233-249. *Oxford Journals*, doi: 10.1093/screen/hjl018. Accessed 11 November 2013.

Cornea, Christine. *Science Fiction Cinema: Between Fantasy and Reality*. Rutgers University Press, 2007.

Crank. Directed by Mark Neveldine and Brian Taylor, Lakeshore Entertainment Group, 2007.

De Certeau, Michel. *The Practice of Everyday Life*. University of California Press, 1984.

Don't Look Now. Directed by Nicolas Roeg, Casey Productions and Eldorado Films, 1973.

Dudenhoeffer, Laurie. *Embodiment and Horror Cinema*. Palgrave Macmillan, 2014.

du Gay, Paul, et al. *Doing Cultural Studies: The Story of the Sony Walkman*. Sage Publications, 1997.

Elsaesser, Thomas. "The Mind-Game Film." *Puzzle Films Complex Storytelling in Contemporary Cinema,* edited by Warren Buckland, Wiley-Blackwell, 2009, pp. 13-41.

Elwell, J. Sage. "The transmediated self: Life between the digital and the analog." *Convergence*, vol. 20, no. 2, 2014, pp. 233-249. *Sage Journals, doi:* 10.1177/1354856513501423. Accessed 3 July 2014.

Enter The Void. Directed by Gaspar Noé, Wild Bunch, 2010.

Evans, Jessica. "Celebrity, Media and History." *Understanding Media: Inside Celebrity*, edited by Jessica Evans and David Hesmondalgh, Open University Press, 2005.

Everett, Wendy. "Fractal Films and the Architecture of Complexity." *Studies in European Cinema,* vol. 2, no. 3, 2005, pp. 159-171. *Taylor & Francis*, http://www.tandfonline.com.ezproxy.auckland.ac.nz/doi/abs/10.1386/seci.2.3.159/1. Accessed 15 December 2015.

eXistenZ. Directed by David Cronenberg, Alliance Atlantis Communications, 1999.

Ex Machina. Directed by Alex Garland, Universal Pictures, Film4 and DNA Films, 2014.

Failes, Ian. "Enter the Void made by fx." *Fxguide*, 28 December 2010, https://www.fxguide.com/featured/enter_the_void_made_by_fx/. Accessed 19 August 2015.

Farman, Jason. "Mapping the digital empire: Google Earth and the process of postmodern cartography." *New Media & Society,* vol. 12, no. 6, 2010, pp. 869-888. *Sage*, http://journals.sagepub.com.ezproxy.auckland.ac.nz/doi/abs/10.1177/1461444809350900. Accessed 18 January 2015.

Farnsworth, John and Terry Austrin. “Assembling Portable Talk and Mobile Worlds: Sound Technologies and Mobile Social Networks.” *Convergence* 11.2 (2005): 14-22. *Sage Publications*, doi: 10.1177/135485650501100202 . Accessed 13 July 2015.

Farquhar, Lee. “Performing and Interpreting Identity through Facebook Imagery.” *Convergence, vol.* 19, no. 4, pp. 446-471. *Sage*, doi: 10.1177/1354856512459838. Accessed 12 January 2016.

Feardotcom. Directed by William Malone, MDP Worldwide, 2002.

Featherstone, Mike. “Ubiquitous Media Introduction.” *Theory Culture Society*, vol. 24, no. 7-8, 2007, pp. 319-322. *Sage*, http://journals.sagepub.com.ezproxy.auckland.ac.nz/doi/abs/10.1177/0263276409103104. Accessed 6 March 2014.

The Fifth Element. Directed by Luc Besson, Gaumont, 1997.

Friedberg, Anne. *The Virtual Window: From Alberti to Microsoft*. MIT Press, 2006.

---.*Window Shopping: Cinema and the Postmodern*. University of California Press, 1993.

Friends With Benefits. Directed by Will Gluck, Screen Gems, Castle Rock Entertainment, Zucker Productions and Olive Bridge Entertainment, 2011.

Forrest Gump. Directed by Robert Zemeckis, Paramount Pictures, 1994.

Futureworld. Directed by Richard T. Heffron, American International Pictures and Aubrey Company, 1976.

Galloway, Alexander R. *The Interface Effect*. Polity, 2012.

Gamer. Directed by by Mark Neveldine and Brian Taylor, Lions Gate and Lakeshore, 2009.

Gartner, Georg, David A. Bennett and Takashi Morita. “Towards Ubiquitous Cartography.” *Cartography and Geographic Information Science,* vol. 34, no. 3, 2007, pp. 247-257. *Taylor & Francis Online*, doi: 10.1559/152304007782382963. Accessed 18 January 2015.

Ghost in the Shell. Directed by Rupert Sanders, Paramount Pictures, Dreamworks and Reliance Entertainment, 2017.

Gilloch, Graeme. “Urban optics: Film, Phantasmagoria and The City in Benjamin and Kracauer.” *New Formations*, vol. 61, 2007, pp. 115-131. *Gale Academic OneFile*. http://go.galegroup.com.ezproxy.auckland.ac.nz/ps/i.do?p=AONE&sw=w&u=learn&v

=2.1&it=r&id=GALE%7CA166935506&asid=a1548ba20d5ff8306f46b00d37fc3cfd. Accessed 24 October 2014.

Gold, John R. "Under Darkened Skies: the City in Science-fiction Film." *Geography*, vol. 86, no. 4, 2001, pp. 337-345. *JSTOR*, http://www.jstor.org.ezproxy.auckland.ac.nz/stable/40573613. Accessed 13 October 2014.

Gorbman, Claudia. *Unheard Melodies: Narrative Film Music*. Indiana University Press and BFI Publishing, 1987.

Gray, Chris Hables. *Cyborg Citizen: Politics in the Posthuman Age.* Routledge, 2001.

Grieb, Margit."Run Lara Run." *ScreenPlay Cinema/Videogames*/Interfaces, edited by Geoff King and Tanya Kryzywinska, Wallflower Press, 2002, pp 157-170.

The Great Gatsby. Directed by Baz Luhrmann, Warner Bros, 2013.

Geuens, Jean-Pierre. "Angels of Light." *The Oxford Handbook of Sound and Image in Digital Media*, edited by Carol Vernallis, Amy Herzog, and John Richardson, Oxford University Press, 2013, pp 45-57. *Oxford Handbooks Online*, doi: 10.1093/oxfordhb/9780199757640.013.015. Accessed 10 November 2015.

Gunning, Tom. "Where Do Colors Go at Night?" *Color and the Moving* Image, edited by Simon Brown, Sarah Street, and Liz Watkins, Routledge, 2013, pp. 81-92.

Hackers. Directed by Ian Softley, United Artists, 1995.

Haraway, Donna. "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century." *Technology and Values: Essential Readings*, edited by Craig Hanks, Wiley-Blackwell, 2010, pp. 225-246.

Harris, Brendan. "The Trip." *Filmmakermagazine*, 20 July 2010, http://filmmakermagazine.com/11207-the-trip-2/#.WVRvm4R96Uk. Accessed 29 June 2017.

Hayles, N. Katherine. *How We Became Posthuman: Virtual Bodies In Cybernetics, Literature and Informatics.* University of Chicago Press, 1999.

Heuer, Jörg, Johannes Hund and Oliver Pfaff. "Toward the Web of Things: Applying Web Technologies to the Physical World." *Computer*, vol. 48, no. 5, May 2015, pp. 34-42. *IEEE Explore*, doi: 10.1109/MC.2015.152. Accessed 26 September 2017.

Higgins, Scott. “A New Colour Consciousness: Colour in the Digital Age.” *Convergence: the International Journal of Research Into new Technologies*, vol. 9, no. 4, 2003, pp. 60-76. *Sage*, doi: 10.1177/135485650300900406. Accessed 5 July 2015.

Hiroshima Mon Amour. Directed by Alain Resnais, Argos Films, Como Films, Daiei Studios, Pathé Entertainment, 1959.

Holy Motors. Directed by Leos Carax, Universal Pictures, 2012.

Her. Directed by Spike Jonze, Annapurna Pictures, 2013.

Hubbert, Julie. “The Compilation Soundtrack from the 1960s to the Present.” *The Oxford Handbook of Film Music Studies*, edited by David Neumeyer, Oxford University Press, 2014, pp. 291-318.

Inception. Directed by Christopher Nolan, Warner Brothers, Legendary Entertainment and Syncopy, 2010.

Irigaray, Luce. *This Sex Which Is Not One.* Cornell University Press, 1985.

Jackson, Kimberly. *Technology, Monstrosity and Reproduction in Twenty-First Century Horror*. Palgrave McMillan, 2013.

Jeong, Seung-Hoon. *Cinematic Interfaces: Film Theory After New Media.* Routledge, 2013.

Jones, Nick. *Hollywood Action Films and Spatial Theory*. Routledge, 2015.

Kallay, Jasmina. *Gaming Film: How Games Are Reshaping Contemporary Cinema.* Palgrave Macmillan, 2013.

Kassabian, Anahid. *Ubiquitous Listening: Affect, Attention, and Distributed Subjectivity*. University of California Press, 2013.

---.“The End of Diegesis As We Know It?” *The Oxford Handbook of New Audiovisual Aesthetics*, edited by Claudia Gorbman, Carol Vernallis and John Richardson, Oxford University Press, 2013. *Oxford Handbooks Online*, n. pag, doi: 10.1093/oxfordhb/9780199733866.013.032. Accessed 28 March 2014.

Kilborn, Richard. *Staging the Real: Factual TV Programming in the Age of Big Brother*. Manchester University Press, 2003.

Kinder, Marsha. “Hot Spots, Avatars, and Narrative Fields Forever- Bunuel’s Legacy for New Digital Media and Interactive Database Narrative.” *Film Quarterly* vol. 55, no. 4, 2002, pp. 2-15. *JSTOR*, doi: 10.1525/fq.2002.55.4.2. Accessed 25 August 2015.

Kirk, Neal. “Networked Spectrality: *In Memorium, Pukse* and Beyond.” *Haunted Technologies, Network Panic and the Found Footage Phenomenon*, edited by Linnie Blake and Xavier Aldana Reyes, I. B. Tauris, 2016,pp. 54-65.

Kozlovic, Anton Karl. “Technophobic Themes in Pre-1990 Computer Films.” *Science as Culture*, vol. 12, no. 3, September 2003, pp 341-373. *Taylor & Francis*, doi 10.1080/09505430309008. Accessed 7 November 2013.

Lamarre, Thomas. “Seeing through the Car: The Automobile as Cosmopolitical Proposition in *The Fifth Element*.” *Journal of Film Studies* , vol. 21, no. 1, 2010, 105-128. *Erudit Open Access Journals*, http://www.erudit.org/en/journals/cine/2010-v21-n1-n1/1005632ar/. Accessed 22 October 2014.

Landon, Brooks. *The Asthetics of Ambivalence*: *Rethinking Science Fiction Film In The Age of Electronic (Re)Production*. Greenwood Press, 1992.

Lane, Richard. *Jean Baudrillard*, 2nd ed, Routledge, 2009.

Lapedis, Hilary. “Popping the Question: The Function and Effect of Popular Music in Cinema.” *Popular Music*, vo. 18, no. 3, 1999, pp. 367-379.

Lavery, David. “FROM CINESPACE TO CYBER SPACE: Zionists and Agents, Realista and Gamers in The Matrix and eXistenz.” *Journal of Popular Film and Television,* vol. 2, no.4, 1st January 2001, pp 150-157. *Taylor and Francis Online*, doi: 10.1080/01956050109602836. Accessed 8 November 2013.

Lola Rennt (Run Lola Run). Directed by Tom Tykwer, Columbia TriStar Home Video, 2000.

Looker. Directed by Michael Crichton, The Ladd Company and Warner Brothers, 1981.

Lowenstein, Adam. *Dreaming of Cinema: Spectatorship, Surrealism, and the Age of Digital Media.* Columbia University Press, 2015.

Lucy. Directed by Luc Besson, Universal Sony Pictures Home Entertainment, 2014.

Magerstädt, Sylvie. *Body, Soul and Contemporary Science Fiction Cinema*. Palgrave Macmillan, 2014.

The Mamas and The Papas. “This Is Dedicated To The One I Love.”*The Mamas and the Papas Deliver*, Dunhill, 1967.

Man with a Movie Camera. Directed by Dziga Vertiv, VUFKU, 1929.

Manovich, Lev. *The Language of New Media*. The MIT Press, 2001.

---. "Inside Photoshop." *Computational Culture: A Journal of Software Studies*, Nov 2011, http://computationalculture.net/article/inside-photoshop. Accessed 11 November 2015.

---. "The Poetics of Augmented Space." *New Media: Theories and Practices of Digitextuality*, edited by Anna Everett and John T. Caldwell, Routledge, 2003, pp. 75-92.

Marie, Laurent. "Jacques Tati's *Play Time* as New Babylon." *Cinema and the City: Film and Urban Societies in a Global Context*, edited by Mark Shiel and Tony Fitzmaurice, Blackwell, 2001, pp. 257-269.

Marks, Laura U. *The Skin of the Film: Intercultural Cinema, Embodiment, and the Senses.* Duke University Press, 2000.

Marwick, Alice and danah boyd. "To See and Be Seen: Celebrity Practice on Twitter." *Convergence: The International Journal of Research Into New Media Technologies*, vol. 17, no. 2, 2011, pp. 139-158. *Sage Journals*, doi: 10.1177/1354856510394539. Accessed 12 September 2017.

The Matrix. Directed by The Wachowski Brothers. Warner Home Video, 2001.

A Matter of Life and Death. Directed by Michael Powell and Emeric Pressburger, The Archers, 1946.

McGowan, Todd. *Out of Time Desire in Atemporal Cinema*. University of Minnesota Press, 2011.

McHugh, Kevin E. "Touch at a Distance: Toward a Phenomenology of Film." *GeoJournal* 80.6 (2015): 839-851. *SpringerLink*. Web. 8 January 2016.

McQueen, Amanda. "'Bring the Noise!': Sonic Intensified Continuity in the Films of Edgar Wright." *Music, Sound, and the Moving Image*, vol. 7, no. 2, 2013, pp. 141-165. *Project Muse*, doi 10.3828/msmi.2013.7. Accessed 15 December 2015.

McQuire, Scott. *The Media City: Media, Architecture and Urban Space.* Sage Publications, 2008.

Memento. Directed by Christopher Nolan, Newmarket Capital Group, Team Todd, I Remember Productions and Summit Entertainment, 2000.

Men, Women & Children. Directed by Jason Reitman, Paramount Pictures, 2014.

Metropolis. Directed by Fritz Lang, Universum Film, 1927.

Minority Report. Directed by Steven Spielberg, Twentieth Century Fox and Dreamworks, 2002.

Misek, Richard. *Chromatic Cinema*. Wiley-Blackwell, 2010.

Morley, David. *Media, Modernity and Technology: The Geography of the New*. Routledge, 2006.

Morvern Callar. Directed by Lynne Ramsay, Lions Gate Home Entertainment, 2003.

Moulin Rouge! Directed by Baz Luhrmann, Twentieth Century Fox and Bazmark Films, 2001.

Nerve. Directed by Henry Joost and Ariel Schulman, Lions Gate Entertainment, 2016.

The Net. Directed by Irwin Winkler, Columbia Pictures, 1995.

Osterweil, Ara. "*Under The Skin*: The Perils of Becoming Female." *Film Quarterley*, vol. 67, no. 4, 2014, pp. 44-51. *JSTOR*, doi: 10.1525/fq.2014.67.4.44 .Accessed 24 August 2015.

Palmer, Lorrie. "Cranked Masculinity: Hypermediation in Digital Action Cinema." *Cinema Journal*, vol. 51, no. 4, 2012, pp. 1-25. *Project Muse*, doi: 10.1353/cj.2012.0079. Accessed 7 January 2016.

Penny, Laurie. "Feeling Machines (Extract from *Bitch Doctrine*)." *The New Zealand Herald: Canvas*, 9 September 2017, pp. 14-15.

Persona. Directed by Ingmar Bergman, Svensk Filmindustri, 1966.

Playtime. Directed by Jacques Tati, Specta Films and Jolly Film, 1967, Criterion Collection, 2006.

Pleasantville. Directed by Gary Ross, New Line Cinema and Larger Than Life Productions, 1998.

Pomerance, Murray. "Neither Here Nor There: ExistenZ as "Elevator Film" *Quarterly Review of Film and Video*, vol. 20, no. 1, 1st January 2003, pp. 1-14. *Taylor and Francis Online*, doi: 10.1080/10509208.2003.10540504. Accessed 11 November 2013.

Price, Brian. "Color, the Formless, and Cinematic Eros." *Color, The Film Reader*, edited by. Angela Dalle Vacche and Brian Price, Routledge, 2006, pp. 76-87.

Prince, Stephen. *Digital Visual Effects in Cinema: The Seduction of Reality*. Rutgers University Press, 2012.

Pulp Fiction. Directed by Quentin Tarantino, Miramax, A Band Apart and Jersey Films, 1994.

Pulse. Directed by Jim Sonzero, The Weinstein Company, Distant Horizon and Neo Art & Logic, 2006.

Rajewsky, Irina O. "Intermediality, Intertextuality and Remediation: A Literary Perspective on Intermediality." *Intermédialités* vol. 6, 2005, pp. 43-64.

Ready Player One. Directed by Steven Spielberg, Warner Brothers, 2018.

Reality. Directed by Matteo Garrone, Pinnacle Films, 2014.

Red Desert. Directed by Michelangelo Antonioni, Film Duemila, Federiz and Francoriz Production, 1964.

Ribaj, Brikena. "Gendering technology: *in* and *out* of the box A theory-informed reading of the iPod." *Journal of Media Practice*, vol. 11, no. 2, 2010, pp. 173-176. *EBSCOhost*, http://search.ebscohost.com/login.aspx?direct=true&db=aft&AN=505296158&site=ehost-live&scope=sit. Accessed 23 June 2015.

Richardson, Ingrid. "Pocket Technospcapes: the Bodily Incorporation of Mobile Media." *Mobile Phone Cultures*, edited by Gerard Goggin, Routledge, 2008, pp. 66-76.

The Ring. Directed by Gore Verbinski, DreamWorks, MacDonald/Parkes Productions and BenderSpink, 2002.

Ringu. Directed by Hideo Nakata, Toho Company and Ace Pictures, 1998.

Rosemary's Baby. Directed by Roman Polanski, William Castle Productions/Paramount Pictures, 1968.

Ruoff, Jeffrey. "Introduction: The Filmic Fourth Dimension: Cinema as Audiovisual Vehicle." *Virtual Voyages: Cinema and Travel*, edited by Jeffrey Ruoff. Durham and London: Duke University Press, 2006. Print.

"Samsung Introduces the GALAXY S4 For a Richer, Simpler and Fuller Life." Samsung, 15 March 2013, https://news.samsung.com/global/samsung-introduces-the-galaxy-s-4-a-life-companion-for-a-richer-simpler-and-fuller-llife. Accessed 25 July 2017.

Schmerheim, Philipp. "From *Psycho* to *Pleasantville*: The Role of Color and Black-and-white Imagery for Film Experience." *Color and the Moving Image*, edited by Simon Brown, Sarah Street, and Liz Watkins, Routledge, 2013, pp. 114-123.

Scott Pilgrim vs The World. Directed by Edgar Wright, Universal Pictures, 2010.

Shaviro, Steven. *Post Cinematic Affect*. John Hunt Publishing, 2010.

---."Seeing Into the Light: Delirious Perception in Harmony Korine's *Spring Breakers*." *Shaviro.com*, 2013. Powerpoint.

Shiel, Mark. "Cinema and the City in History and Theory." *Cinema and the City: Film and Urban Societies in a Global* Context, edited by Mark Shiel and Tony Fitzmaurice, Blackwell, 2001, pp. 1-18.

Simun, Miriam. "My music, my world: using the MP3 player to shape experience in London." *New Media & Society*, vol. 11, no. 6, 2009, pp. 921-941. *Sage Publications*, doi: 10.1177/1461444809336512. Accessed 30 June 2015.

Sin City. Directed by Frank Miller and Robert Rodriguez, Dimension Films and Troublemaker Studios, 2005.

Sinatra, Nancy and Lee Hazelwood. "Some Velvet Morning." *Movin' With Nancy*, Reprise, 1967.

The Sixth Sense. Directed by M. Knight Shyamalan, Hollywood Pictures, Spyglass Entertainment, The Kennedy/Marshall Company and Barry Mendel Productions, 1999.

Snake Eyes. Directed by Brian de Palma, Paramount Pictures, 1998.

Sobchack, Vivian. *The Address of the Eye: A Phenomenology of Film Experience.* Princeton University Press, 1992.

---. *Screening Space The American Science Fiction Film*. 3rd Ed., Rutgers University Press, 1999

The Sound of Music. Directed by Robert Wise, Twentieth Century Fox, 1965.

Source Code. Directed by Duncan Jones, Summit Entertainment, Vendome Pictures and The Mark Gordon Company, 2011.

Southland Tales. Directed by Richard Kelly, Universal Pictures, Cherry Road Films, Darko Entertainment, MHF Zweite Academy Film, Eden Roc Productions, Persistent Entertainment, Academy Film, Destination Films, Inferno Distribution and Wild Bunch, 2006.

Soylent Green. Directed by Richard Fleischer, MGM, 1973.

Spears, Britney. "Everytime." *In The Zone*, Jive Records, 2003.

Spring Breakers. Directed by Harmony Korine. Icon Film Distribution, 2013.

Springer, Claudia. “Psycho Cybernetics in Films of the 1990s.” *Alien Zone II: The Spaces of Science Fiction* Cinema, edited by Annette Kuhn, Verso, 1999, pp 203-218.

Sterba, Wendy. “Cybernetic Systems, Electronic Culture and the Post-Photographic Image in Contemporary Hollywood Dystopias.” *Film In The Post-Media* Age, edited by Ágnes Pethő, Cambridge Scholars Publishing, 2012, pp. 271-291.

Stewart, Garrett. “The ‘Videology’ of Science Fiction.” *Shadows of the Magic Lamp: Fantasy and Science Fiction in Film*, edited by George Slusser and Eric S. Rabkin.,Southern Illinois University Press, 1985, pp. 159-207.

---. “Body Snatching: Science Fiction’s Photographic Trace.” *Alien Zone II: The Spaces of Science-fiction Cinema*, edited by Annette Kuhn, Verso, 1999, pp. 226-248.

---. *Framed Time: Toward a Postfilmic Cinema.* University of Chicago Press, 2007.

Stilwell, Robynn. “Vinyl Communion: the Record as Ritual Object in Girls’ Rites-of-Passage Films.” *Changing Tunes: Issues in Music and Film*, edited by Phil Powrie and Robynn J. Stilwell, Ashgate Press, 2006, pp. 152-66.

Strange Days. Directed by Kathryn Bigelow, Lightstorm Entertainment, 1995.

Sucker Punch. Directed by Zack Snyder. Warner Brothers, 2011.

Surrogates. Directed by Jonathan Mostow, Touchstone Pictures, 2009.

The Terminator. Directed by James Cameron, Hemdale, Pacific Western, Euro Film Funding and Cinema ‘84/Greenberg Brothers Partnership, 1984.

Terminator 2: Judgement Day. Directed by James Cameron, Carolco Pictures, Pacific Western, Lightstorm Entertainment, Canal+ and T2 Productions, 1991.

The Thirteenth Floor. Directed by Josef Rusnak, Columbia Pictures, 1999.

Tinnell, John. “Computing *en plein air*: Augmented reality and impressionist aesthetics.” *Convergence* vol. 20, no. 1, 2013, pp. 69-84. *Sage*, doi: 10.1177/1354856513514338 .Accessed 6 March 2014.

Total Recall. Directed by Len Wisemen, Total Recall, Original Film, Prime Focus and Rekall Productions, 2012.

Transcendence. Directed by Wally Pfister. Alcon Entertainment, DMG Entertainment and Straight Up Films, 2011.

TRON. Directed by Steven Lisberger, Walt Disney Productions, 1982.

TRON: Legacy. Directed by Joseph Kosinski, Walt Disney Pictures, 2010.

Trottier, Daniel. "Watching Yourself, Watching Others: Popular Representations of Panoptic Surveillance in Reality TV Programs." *How Real Is Reality TV? Essays on Representation and Truth*, edited by David S. Escoffery. Jefferson, McFarland & Company, 2006, pp. 259-276.

The Truman Show. Directed by Peter Weir, Paramount Pictures and Scott Rudin Productions, 1998.

Trust. Directed by David Schwimmer, Millennium Films and Dark Harbor, 2010.

Tucker, Aaron. *Interfacing with the Internet in Popular Cinema.* Palgrave Macmillan, 2014.

Tunbridge, Laura. "Scarlett Johansson's Body and the Materialization of Voice." *Twentieth-Century Music*, vol. 13, no. 1, March 2016, pp. 139-152. *Cambridge Journals*, doi: 10.1017/S1478572215000201. Accessed 30 March 2016.

Turkle, Sherry. *Life on the Screen: Identity in the Age of the Internet.* Simon and Schuster Paperbacks, 1995.

Under The Skin. Directed by Jonathan Glazer. Film4, 2014.

"Under the Skin: VFX." *Film4.com*, n. date, http://www.film4.com/special-features/interviews/under-the-skin-vfx. Accessed 28 June 2017.

Unfriended Directed by Leo Gabriadze, Bazelevs Production and Blumhouse Productions, 2014.

van Dijck, José. "From Shoebox to Performative Agent: The Computer as Personal Memory Machine." *New Media & Society*, vol. 7, no. 3, June 2005, pp. 311-32.

Vernallis, Carol.Strange People, Weird Objects: The Nature of Narrativity, Character and Editing in Music Videos." *Medium Cool: Music Videos From Soundies to Cellphones*, edited by Roger Beebe and Jason Middleton, Duke University Press, 2007, pp. 111-151.

---.*Unruly Media YouTube, Music Video, and the New Digital Cinema.* Oxford University Press, 2013.

Vertigo. Directed by Alfred Hitchcock, Paramount Pictures, 1958.

Virilio, Paul. *The Lost Dimension,* Semiotexte, 1991.

Willet, Gene. “A Musical tour of the Bizarre: Popular Music as Fantasy in David Lynch.” *Popular Music and the New Auteur: Visionary Filmmakers After MTV,* edited by Arved Ashby, Oxford University Press, 2013, pp. 87-108.

Winters, Ben. “The Non-Diegetic Fallacy: Film, Music, and Narrative Space.” *Music & Letters*, vol. 91, no. 2, 2010, pp. 224-244. *Oxford Journals*, doi: 10.1093/ml/gcq019. Accessed 28 March 2015.

The Wizard of Oz. Directed by Victor Fleming, MGM, 1939.

Wolf, Mark J. P.. “Space in the Video Game.” *The Medium of the Video Game,* edited by Mark J.P. Wolf, University of Texas Press, 2001, pp. 51-76.

Wood, Aylish. *Digital Encounters*. Routledge, 2007.

---. “Sonic Times in Watchmen and Inception.” *The Oxford Handbook of Sound and Image in Digital Media,* edited by Carol Vernallis, Amy Herzog and John Richardson, 2013. *Oxford Handbooks Online,* n. pag, doi: 10.1093/oxfordhb/9780199757640.013.029. Accessed 6 March 2014.

Wosk, Julie. *My Fair Ladies: Female Robots, Androids and Other Artificial Eves*. Rutgers University Press, 2015.

Yacavone, Daniel. “Spaces, Gaps and Levels From the Diegetic to the Aesthetic in Film Theory.” *Music, Sound & the Moving Image*, vol. 6, no. 1, 2012, pp. 21-37. *EBSCOhost*, doi: 10.3828/msmi.2012.4. Accessed 28 March 2014.