MEDIA HETEROTOPIAS

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Digital Effects and Material
Labor in Global Film Production

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To my parents

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computer-generated colossal monster swims below the surface of the Pacific Ocean, and a close-up of a butterfly morphs into an aerial shot of a similarly shaped island. A boy and his robot companion soar exuberantly over a cityscape bathed in sunlight, and an astronaut who is suspended midair in a five-dimensional space engages in nonverbal communication with his Earth-bound daughter. The integration of imaginary figures into virtual cinematic spaces and the sensation of movement across physical and digital environments embody fantasies of traversing geographical, national, and ontological borders. Contemporary cinema is manifesting aspirations of mobility in its narratives, aesthetics, iconography, editing techniques, camera movement, and thematic tropes of travel. In the contemporary media landscape, digital technology is frequently deployed to achieve the technical and imaginative compositing of physical spaces and computer-generated environments.

Current practices in filmmaking are increasingly deploying digital technologies, thereby enabling, facilitating, and necessitating a global reconfiguration of film production workflows and pipelines. As a result, a rising number of contemporary films are created by collaborative forms of transnational filmmaking that circulate economic resources, cultural products, technical expertise, and creative labor via digital platforms in a global film industry. Meanwhile, the predominant rhetoric of seamlessness, magic, and automation attached to digital technologies in both popular and scholarly discourses encourages the tendency in film audi-

ences, scholars, and industry specialists to disregard multiple stages of creative labor in film production pipelines. The tendency of neglect is exacerbated as the pipelines increasingly become geographically dispersed in various national territories and distributed across nonlinear digital workflows that exemplify post-Fordist practices of flexible accumulation. Creative workers in film industries have always been somewhat mobile since the early beginnings of cinema. The current filmmaking practices in increasingly global and digital production pipelines, however, differ dramatically from past forms in scope, scale, and frequency.

A historical shift in film production is taking place at this critical moment in the intersection of transnational filmmaking and digital technologies. This necessitates a corresponding shift in scholarship that adequately acknowledges the digitized and globalized workflows of media production. Integrating concerns of transnational film studies, production studies, and critical theory, this book examines networked connections among global film production, digital filmmaking, computer-generated visual effects, creative labor, and digital aesthetics.

MEDIA HETEROTOPIA AS CONCEPT

Expanding Michel Foucault's concept of heterotopic spaces to encompass digitally composited environments in contemporary cinema, I introduce a critical concept and methodology: "media heterotopia." This book demonstrates the use of "media heterotopia" as a mode of perception that recognizes and describes new hybrid forms, that is, digital composites of multiple layers that contain material residues of globally dispersed film production. It examines industry practices that take place in the workflow of global production pipelines in a digital era. The book particularly focuses on forms of creative labor that leave legible or perceptible traces of residual materiality onscreen—what I call "spectral effects"—by creating the aesthetic design and stylistic effects of a film, namely, special and visual effects, sound effects, editing, cinematography, and compositing. This scholarly task addresses the need to reconnect mediated onscreen environments and entities with the material presence of production spaces and laboring bodies. The critical stakes of reclaiming materiality are high because it is a matter of ownership, control, and claim over a wide spectrum of labor, capital, resources, and intellectual property. To study what is rendered invisible through the effacement of site-specific materiality, this project examines the concerted efforts of

diverse forms of labor and the uneven distribution of ownership claims over the finished product.

By examining production cultures and industrial practices of contemporary filmmaking, a heterotopic analysis recognizes digitally constructed assets and composited environments as incarnations of material realities attached to actual locales and physical bodies. This task is important because they embody tensions between global aspirations and nationalist desires, as well as geopolitical infrastructures and frictions that exist "on the ground." This book studies the agents and sites of production that create these mediated environments and examines how they are rendered invisible, or "spectral." Here a heterotopic perception is deployed to identify and recognize these spectral effects of globally dispersed, digitally composited sites and bodies of labor.

This book tackles the rhetorical and aesthetic emphasis on *seamlessness*, which masks the complex material realities of the actual workflow of global production pipelines in a digital regime. In order to dismantle the dissimulation of seamlessness, a heterotopic analysis reveals it as a discursive construct that generates a misleading conception of transnational filmmaking practices that are prevalent in contemporary media environments. The industry term "compositing" is appropriated as a deconstructive research methodology and interpretive strategy to examine the material and metaphorical dimensions of a process that simultaneously masks and exposes the layering of multiple spatiotemporalities in the finished product. Because digital compositing is an integral stage in film production that achieves the technical and aesthetic merging of multiple digital layers, assets, and environments, the critical appropriation of this term is apposite to analyze the site-specific conditions of contemporary film production and the effects they produce.

At stake is the revelation of the contradiction between rhetoric and reality: the *rhetoric* of a fluid, effortless mobility idealized in a film's narrative, aesthetics, and "seamless" integration of visual effects, and the *reality* of local circumstances, geopolitical frictions, and distribution of labor in global production pipelines that, at times, sustains and reinforces structural inequalities and cultural hegemony. As a new mode of synesthetic apprehension, a heterotopic perception allows spectators to perceive and interpret disjunctures between rhetoric and reality. This idea differs from the popular notion of immersion that is often invoked in film and media studies by refusing to accept that the spectator is mindlessly

immersed in, or dazzled by, the virtual world. Instead, this new mode of perception endeavors to recognize social realities grounded in the material world.

The concept of media heterotopia prompts us to think beyond the limiting container of the national while avoiding the facile transcendence of borders often invoked in discussions of the transnational. It presents an alternative critical framework that moves away from the restrictions of the national paradigm and reconfigures national claims within a transnational register by acknowledging the overlapping layers of the national and the transnational, or the local and the global. A heterotopic analysis demonstrates a method to challenge the notion of cinematic space as a seamless unity. Instead, it considers cinematic space as a textured, multilayered assemblage of mediated materiality, or a composite of physical locations and digitally manipulated images that retain material residues of a geographically dispersed workflow.

POSITIONING MEDIA HETEROTOPIA
IN TRANSNATIONAL FILM STUDIES

In this era of globally circulating capital, labor, and media, film scholars are moving away from linear historical narratives confined to specific national or regional boundaries to consider more dispersed and expansive global narratives, propelling a turn toward spatial concepts and methodologies.[1] The growing scholarly interest in digital media dovetails with this move toward globalization because they both promise to actualize our aspirations of fluidity and mobility across textual, technological, and geographical borders. It is debatable whether this "spatial turn" signifies a seismic rupture or a fundamental difference from the spatial concerns of previous work in film and media studies. In any case, an increasing number of scholars are exploring and demonstrating explicit ways to foreground issues of space in studying media texts, industries, institutions, infrastructures, and production cultures.[2]

Many film scholars now acknowledge transnational film studies as a valid and vital field of inquiry and accept the term "transnational" as a viable and useful concept to describe contemporary filmmaking practices. One pressing concern is the specificity and scholarly significance of the "transnational" in comparison to related terms, notably, "international" and "global." By unpacking the term ("trans-" and "national"), scholars suggest that we should refrain from overcelebrating the "trans-" portion

of the word, noting that the "national" should always be implicated in discussions of the transnational. Pam Cook asserts that "international" implies the relative stability of the national element, whereas "transnational" indicates a more fluid exchange among "people from diverse backgrounds who engage in collaborative cultural activities" through its focus on mobility and flow.[3]

Wary of the interchangeable deployment of related concepts, Nataša Ďurovičová highlights the differences among the three terms: "global," "international," "and transnational." She notes that the "global" is connected to "the philosophical category of totality," and that the prefix "inter-" signals "a latent relationship of parity," whereas the prefix "trans-" implies relations of "unevenness and mobility."[4] Ďurovičová then considers ways to upgrade "the geopolitical imaginary of the discipline of film studies" to a transnational perspective.[5] Noting that the "old national cinemas approach" is no longer sufficient, Chris Berry and Mary Farquhar also interrogate how we can think about "transnational film studies" as an academic field.[6] With the rising popularity of the term, scholars who study cross-border collaborations have expressed concerns that an uncritical use of the concept of transnationality could render it irrelevant or redundant. In response to this issue, Will Higbee and Song Hwee Lim propose a "critical transnationalism" in film studies that adequately interprets the "interface between global and local," avoids the binary of national/transnational, and proposes a theory of transnational cinema that considers both levels of the "conceptual-abstract" and the "concrete-specific."[7] Similarly, Mette Hjort argues that, for the transnational turn in film studies to be productive, scholars need to "find a *principled* way of distinguishing between what counts as transnational and what does not."[8] As possible ways to accomplish this, she suggests either using the "transnational" as "a scalar concept," that is, gauging "strong or weak forms of transnationality," or distinguishing between "marked and unmarked transnationality."[9]

For the purposes of this project on media heterotopias, Hjort's aforementioned suggestions are more useful than the detailed typology of cinematic transnationalisms that she proposes in the same essay. Her suggestion that we should consider different forms of marked and unmarked transnationality is particularly apposite to clarify what I mean by "transnational filmmaking." The transnational can assert itself as a critical force in the film production process in a variety of ways: geo-

graphically diverse production sites, globally dispersed laboring agents and creative talent,[10] and cross-border partnerships, collaborations, and coproductions in terms of financial investment and cultural resources. To explain her notion of "marked transnationality," Hjort writes: "A film might be said to count as an instance of marked transnationality if the agents who are collectively its author (typically directors, cinematographers, editors, actors, and producers) intentionally *direct the attention* of viewers towards various transnational properties that encourage thinking about transnationality. This kind of process may involve the *foregrounding or making salient* of certain elements through camerawork or editing, but it may also involve an *intensive* use of those narrative techniques and devices that allow certain ideas to be constituted as fully developed themes."[11]

Although a heterotopic analysis of cinematic transnationalism is similarly concerned with such elements as camerawork or editing, it troubles the binary of marked/unmarked by studying spectral residues of site-specific materiality that can be found in a film. These residues similarly "direct the attention of viewers toward various transnational properties that encourage thinking about transnationality," as noted by Hjort. A heterotopic analysis of these spectral residues, however, recognizes that the distinction between marked and unmarked is ambiguous. It is not always easy to identify the intentionality of the various agents, partly because of the diversity that precludes them from forming a monolithic group that shares a collective vision of the film. Furthermore, it is often the supposedly unmarked elements of a film that, regardless of intentionality, provoke the spectator to think about the transnational forces at work in cinema.

The scholarly task at hand is to discuss transnational cinema in ways that expand beyond traditional modes or explicit forms of multinational coproduction, and to move toward a critical strategy that adequately addresses the material practices of transnational filmmaking and the global reconfiguration of labor. To perform this task, this book highlights various forms of creative labor that work to embody the collective vision onscreen by creating the aesthetic design and stylistic effects of a film, namely, computer animation, visual effects, special effects, cinematography, editing, and digital compositing. This focus is not to undermine the multiple forms of labor that take place beyond the sensory realm

of audience perception (e.g., the work of catering staff, drivers, or assistants) but to emphasize the erasure of particular forms of creative labor that leave *overtly* legible or perceptible traces of residual materiality in the film. This is, of course, only a tentative beginning toward the development of much-needed research that includes scholarly recognition of a wider spectrum of labor in film and media industries.

By drawing connections between global media production and digital technologies, this project offers a different kind of mapping of the world through the concept of media heterotopia. The process of digital compositing creates cinematic imagery that integrates physical and virtual elements and stitches together geographically distant sites and bodies that are attached to diverse national territories and cultural backgrounds.[12] A heterotopic analysis is useful for describing and identifying the multiple audiovisual layers of cinematic spaces that form a composite image. This book proposes that we consider how each digitally manipulated layer is materially connected to specific sites of production and how the composited layers retain the spectral, yet perceptible, residues of a geographically dispersed workforce.

In accordance with the view that theoretical abstractions should be grounded in the materiality of historical locations and cultural practices, this project focuses primarily on films collaboratively produced by media industries around the Pacific Rim region, including South Korea, China, Japan, India, New Zealand, Australia, and the United States. Two notable exceptions are Iceland and Great Britain: two nations that figure prominently in the films discussed here for their roles in location shooting and visual effects, respectively. The geographical focus of this project is necessary to situate it in the context of economic interests, geopolitical tensions, cultural collaborations, and industrial networks that are specific to this region. This localized perspective is partly based on the fact that a large amount of work on computer-generated visual effects and animation takes place in this area for various reasons that include patterns of global capital flows, preexisting forms of hard and soft infrastructure, media production pipelines, tax exemptions, and lower labor costs, as well as professional networks and personal relationships. Many visual effects companies have branches in Asia, such as Industrial Light and Magic's Singaporean branch and Moving Picture Company's facilities in China and India. Other local factors include Hollywood's long-standing

tradition of outsourcing animation work to East Asian countries (e.g., China and Korea) or hiring experts from these regions, and the rising status of New Zealand's Weta Digital as a seasoned visual effects vendor.

Despite its emphasis on transnational filmmaking, this localized focus is also imperative to examine the concrete site-specific elements and practices of media materiality, which are contingent to regional networks of exchange that exist within a larger global context. As noted, various socioeconomic, political, and cultural forces affect, shape, and produce media texts, industries, and infrastructures. This book, however, is not an area studies project. Rather, it deploys an interdisciplinary approach that draws connections between film and media, global, cultural, and spatial studies by studying virtual spaces and bodies in audiovisual media and transnational networks of creative labor.

HETEROTOPIC ANALYSIS AS METHODOLOGY

This book theorizes and demonstrates a heterotopic perception or spectatorship that recognizes the material residues of globally dispersed workforces and digital production pipelines in the aesthetic forms of contemporary cinema. As such, this study engages in an interdisciplinary discussion of critical theory, mediated spaces, global media practices, material realities, geopolitical formations, and transnational aspirations. The existing body of scholarship in film and media studies is often divided between textual analyses of media images, narratives, and representations versus extratextual analyses of political economy, media production, and consumption. In *Production Culture*, John Caldwell demonstrates an "integrated cultural-industrial method" of analysis that synthesizes textual analysis, interviews, ethnographic fieldwork, and economic/industrial analysis in order to study the cultural practices of film and video production in the Los Angeles area.[13] This study responds to Caldwell's call for cross-pollination between industrial self-analyses and scholarly analyses. Focusing on the encounter between physical sites and virtual spaces, this book examines how the materiality of transnational labor is mediated in film texts and leaves palpable and perceptible traces onscreen. To fulfill this task, an inclusive method is needed to integrate critical analyses of film texts, industry practices, technological developments, and production cultures of contemporary global cinema.

This book proposes to address this need by embarking on a project that is ever expanding because new media technologies and industry practices

are constantly emerging and evolving. Through a double research focus that is both theoretically and technically informed, this project revises traditional film analysis by incorporating analyses of what is usually regarded as extratextual, such as field research on production spaces and interviews with industry professionals. In an endeavor to bridge the divisive gap between analyses of media representations, technologies, theoretical concepts, and industrial practices, this book combines the methodologies of textual analysis, interviews, and ethnographic fieldwork. I take a closer look at filmmaking techniques and production culture by examining production spaces (e.g., film studios, visual effects companies) and interviewing industry professionals, such as directors, producers, visual effects supervisors, previsualization artists, and production designers. Other sites of research include professional conferences on film, animation, and computer graphics that attract both scholars and industry professionals (e.g., Special Interest Group on Computer Graphics and Interactive Techniques [SIGGRAPH], an annual conference on computer graphics). My sources also include DVD/Blu-ray special features that offer in-depth interviews, specialized publications on technological innovations and visual effects, academic publications, trade journals, and popular press articles.

This project also extends a wider view of the filmmaking process to include various stages of production, preproduction, and postproduction. Until recently, studies on practical and visual effects have been marginalized in film studies. Thanks to an increased interest in digital technologies and new media, scholars are publishing innovative research on digital aesthetics, computer-generated imagery (CGI), and technological developments in film production. For instance, the British Film Institute anthology *Special Effects: New Histories/Theories/Contexts* directs much-needed scholarly attention toward various forms of special and visual effects, including prosthetics makeup effects, motion capture, puppet animation, and digital effects. Shilo McClean compares digital visual effects with other innovative film technologies, such as sound and color, as a legitimate tool of storytelling; Dan North traces the genealogy of trickery through spectacle from nineteenth-century stage magic and early trick films to contemporary films that include CGI; Stephen Prince analyzes how digital technologies expand the tools of Hollywood filmmaking in aesthetic, theoretical, and historical terms; and Kristen Whissel discusses how spectacular digital visual effects impact the narrative and thematic

concerns of a film while placing them in broader historical contexts of film history and technological change.[14]

This scholarly emphasis is particularly important at this moment, as production processes are increasingly commodified and consumed as popular entertainment in DVD/Blu-ray special features, interviews, promotional material, and popular/trade publications that purport to reveal the supposed "magic" behind CGI and visual effects. Although this wealth of practical information ostensibly promises to explain how things are made, it often elides the political, economic, or ethical implications of production cultures and material practices of filmmaking. Addressing this erasure, this project on media heterotopias aims to reconfigure the relationship between the material reality of production spaces and digitally mediated environments. The significance of studying the details of the production process reaches beyond specific areas of film studies, such as production studies, media industry ethnographies, and political economy. This project refuses to disavow the material practices of site-specific labor and considers the theoretical, practical, and ethical implications of this disavowal to the discipline as a whole. It proposes to revise a naive misconception of a global connectivity that assumes a facile fusion of heterogeneous elements of territorial materiality.

This "composite" methodology is necessitated by this effacement of labor, through which the step-by-step process of making films and multiple sources of labor are erased or hidden from public view. Various agents collude to sustain this exclusion: studios guarding their intellectual property rights and franchise ownership; companies protecting their claims over proprietary tools and software; and individual artisans promoting the magical and illusory quality of their work for artistic, economic, or legal reasons. This secrecy can be attributed to the industry's need to perpetuate the myth of seamless integrity, as well as artists' need to hide the nuts and bolts of their craft. But the stakes are high when this secrecy manages to conceal global dispersions of power, inequities in distributions of economic and cultural capital, and labor practices in media industries. Sustaining this air of mystique can ultimately prove detrimental for artists because it obscures the time-consuming elements of their labor.[15] This need for secrecy and propriety also makes it difficult for scholars, students, and fans who wish to study contemporary forms of film production. Large portions of archived material are inaccessible to industry outsiders, and proprietary resources are digitized and stored in private

files owned by the studio, the production company, or individual industry professionals. The seriality of movie franchises, which includes prequels, sequels, reboots, and remakes, also renders it difficult for outsiders to obtain access because the creative property must be protected and hidden from the public for extended periods of time.

Describing her ethnographic research in Hollywood, anthropologist Sherry Ortner notes the difficulties of gaining access to the professional community of "Hollywood insiders" that is structured around an "inside/outside binary."[16] The reasons behind this secrecy, she argues, include the need to protect information due to Hollywood's competitive environment; the need to sustain a sense of community within the industry; the need to maintain the illusions of Hollywood products; and the "culture of exclusion" that constitutes the Hollywood community.[17] As a way of surmounting the barriers of secrecy in Hollywood, Ortner suggests a methodology of participant observation called "interface ethnography," which entails attending public events that are open to the public as well as to Hollywood professionals.[18] John Caldwell, a pioneer in production studies, similarly observes that the growing number of industry/academic interactions enables scholars to gain access to information and provides opportunities for fieldwork, despite remaining difficulties such as legal actions and corporate policies.[19]

To deal with this problem of accessibility, scholars studying production culture are driven to be innovative in their search for source material. Because this heterotopic project entails excavating hidden details and layers, it has been inspired by the archaeological approaches and methods of film historians through the shared task of looking for materials that are not immediately accessible due to temporal distance, spatial discrepancy, or proprietary gatekeeping. As a prime example of transdisciplinary research that connects cultural theory, historiography, feminist theory, and film history, Giuliana Bruno's work gracefully integrates issues of time and space, as well as history and geography. In *Streetwalking on a Ruined Map*, Bruno adopts what she calls an "archaeological" intertextual approach by examining visual, literary, and spatial texts, such as novels, paintings, photographs, architectural sites, and literature. This approach is necessitated by the fact that her object of study—the lost or forgotten work of Italian woman filmmaker Elvira Notari—is no longer physically available. Bruno performs an analysis that she describes as a "palimpsest," which prompts her to go beyond the "visible traces on a surface"

to reveal "invisible ones inside the body of texts."[20] The tension between visibility and invisibility is negotiated in her work when she spatializes the historical practices in Italy from the late 1800s to the mid-1900s, such as the way women experienced movement and mobility through "street-walking" and film viewing—two activities that were closely related at the time. This tension is also palpable when Bruno corporealizes visual representations by contextualizing pictorial, photographic, and cinematic images of women's bodies within the actual public spaces in which these images were housed and consumed, such as arcades, theaters, and city streets.

This book does not present a history of transnational filmmaking, since its focus is on contemporary media texts, modes, and industrial practices. It is, however, influenced by a historical consciousness that recognizes that these contemporaneous economic, cultural, and geopolitical infrastructures are created and sustained by historically specific conditions of globally inclined industries, infrastructures, and cultures.

This project envisions a transnational geography that maps traces of territorial materiality through globally dispersed and digitally networked film production pipelines. The corpus of films analyzed here performs global circulations of capital, labor, resources, and images. In other words, they manifest the *seams* of digital filmmaking and the perceptible traces of a transnational workforce. For example, the computer-generated monster in *The Host* functions as a very *visible* seam that embodies transnational collaboration, and the globally mobile figure of Godzilla actively performs a global, or planetary, identity. The following chapters present heterotopic analyses that expose legible traces of transnational sources of labor and expertise in the film, extratextual material, and surrounding discourse.

This book endeavors to expand the geographical scope of the study of production culture in the media industry. It shifts the focus from the localized area of Los Angeles to geographically dispersed locales around the Pacific Rim. The selection of films is diversified in terms of region, genre, budget, and use of digital technologies. *Avatar*, *Oblivion*, *Interstellar*, and *Godzilla* are "blockbuster" films produced by the digital pipelines of global Hollywood. *Avatar*, in particular, is regarded as a groundbreaking project that built new "virtual production" pipelines connecting the capital, resources, and creative labor of the United States, New Zealand, and Great Britain. *The Host* is a South Korean film produced by a geo-

graphically dispersed workforce that included a Korean game designer, New Zealand's Weta Digital, John Cox's workshop in Australia, and the Orphanage, a visual effects studio that was based in California. Directed by an Indian-born filmmaker who works in the United States, *The Fall* is an independent film that was shot on location in twenty-four countries. *Ashes of Time Redux* is a digitally reedited version of a film by a globally recognized Hong Kong auteur. *The World* is a Chinese/Japanese/French coproduction shot on location at the Beijing World Park and a park in Shenzhen called Window of the World. *Big Hero 6* is a computer-animated film that was produced by Walt Disney Animation Studios and based on a Marvel comic featuring a Japanese superhero team.

These films were selected to compare their diverse ways of thematizing, visualizing, and enacting global mobility. Some of the films are large-scale, big-budget projects produced by economic or creative collaborations that exemplify the global reconfiguration of labor. Others are independent films that embody global aspirations and movements in ways that deviate from the industrial norm. Many contemporary films do not necessarily announce themselves as multinational coproductions or partnerships. Rather, these films are better described as transnational *collaborations*, a more flexible term that encompasses versatile configurations of cooperative labor.

In film production, the terms "coproduction" and "partnership" place more emphasis on the financial and business aspect of film production, in contrast to "collaboration," which is commonly used to describe the collective nature of creative endeavor. Meanwhile, "partnership" suggests an even, nonhierarchical distribution of shared work and responsibility, whereas "collaboration" ambiguously encompasses uneven negotiations and distributions of economic and cultural capital. Furthermore, the term "col-*labor*-ation" is more intimately related to labor, as the latter is embedded both linguistically and conceptually in the former.[21] This term, I find, is most appropriate in describing contemporary transnational filmmaking because it encompasses the whole process that includes the various stages of labor from beginning to end: preproduction, production, and postproduction.[22]

Chapter 1 introduces the concept of media heterotopia and explains its role in studying mediated spaces and bodies that are digitally created and composited by a globally dispersed workforce. This chapter discusses the values of "seamlessness," "smoothness," and "fluidity," exploring how

they are associated with the properties of digital technologies in popular, professional, and scholarly discourses on film production. Here I examine rhetorical strategies that efface traces of temporal and spatial dispersions of labor. This assumption of dematerialization becomes a high-stakes issue, I contend, when the abstraction of material objects into numeric symbols that occurs in the digital process is transferred to the erasure of human labor. The development of computerized processes often entails the misguided notion that, when a computer takes over work previously done by humans, it eliminates the human factor in the production process. This chapter discusses how a slippage of meaning occurs between digitization and automation, and how this negatively affects those working in the film industry.

Chapter 2 demonstrates how media heterotopias offer a spatial conception of a world that maps global movements of bodies, resources, images, and commodities. This chapter explains how media heterotopias can be envisioned as maps, in which different territories are merged as a composite, mobilized into closer proximity with one another, or linked via globally dispersed production pipelines. A heterotopic analysis of two films, *The Fall* (Tarsem Singh, 2006) and *Ashes of Time Redux* (Wong Kar-wai, 2008), examines how media heterotopias are created through a process that involves location shooting and various forms of digital filmmaking, editing, and remastering in geographically diverse production sites. Seeing these films as a map enables us to track multiple temporal and spatial trajectories that are emblematic of our globally connected and digitally mediated times. In this case, such trajectories include the infrastructures of cultural and economic capital, the distribution of international art house films, cinematic circulations of the martial arts genre, the geographical dispersion of the Chinese diaspora, and the vicissitudes of the Hong Kong film industry. This chapter specifically focuses on transnational trajectories that embody physical and virtual cosmopolitan mobilities in and beyond diegetic spaces. I read these films as a heterotopic assemblage that articulates intersecting global and digital modes of being and connecting.

Chapter 3 examines the digital rendering process of material production spaces to explain they are composited into media heterotopias. The purpose of this task is to study how composited shots contain material and digital assets that are mutable, mobile, and modular. I discuss the hybrid environments in contemporary science fiction films that incorpo-

rate real locations and computer-generated ecosystems to create "alien," or otherworldly, spaces. I particularly focus on three science fiction films made by global Hollywood: *Avatar* (James Cameron, 2009), *Oblivion* (Joseph Kosinski, 2013), and *Interstellar* (Christopher Nolan, 2014). These films present virtual ecosystems that are digitally manipulated, produced, and composited. They also use terrestrial locations as raw materials to build imaginary, unearthly landscapes. A heterotopic analysis will reveal how globally dispersed digital workflows produce and composite virtual terrains, or heterotopic spaces that incarnate transnational geographies.

Chapter 4 draws attention to heterotopic bodies that inhabit real and virtual spaces by examining the computer-animated, globally mobile monsters in *The Host* (*Gwoemul*, Bong Joon-ho, 2006) and *Godzilla* (Gareth Edwards, 2014). This chapter discusses how putatively intangible cultural codes are embodied in these monstrous figures through bodily gestures, visual styles, and globally translatable forms. I study how images of transnational bodies become animated and corporealized through the processes of digital filmmaking and compositing. These monstrous bodies are presented as media heterotopias that comprise multiple composited layers of various national origins and cultural identities. This chapter suggests reading these monstrous bodies as a visible seam of compositing transnational labor, and as entities that embody the ongoing negotiation between national claims of ownership and transnational circulations of mediated and physical bodies. A heterotopic analysis deconstructs the visual and corporeal nature of these monsters to consider how they are made palatable and legible for global consumption.

Chapter 5 focuses on the potential of the digital medium to convey geographical diversity and cosmopolitan mobility in heterotopic spaces. This chapter discusses how two films, *The World* (Jia Zhangke, 2004) and *Big Hero 6* (Don Hall and Chris Williams, 2014), perform digitality in relation to how they perform globality. These films foreground the cinematic use of digital technologies and their role in facilitating a virtual mobility that transcends regional, national, and geographical boundaries. Both films embody contemporary global consciousness by deploying various modes of mediation, communication, and visualization. *Big Hero 6* presents both material and mediated performances of transnational movement, whereas *The World* focuses on "virtual cosmopolitans" who use various modes of media technologies to simulate global travel. This chapter discusses how digital aesthetics can envision and enact a

virtual mobility that transcends geographical boundaries to engage in a global media network.

The heterotopic analyses in this book focus on narrative feature films, but the theoretical model of media heterotopias is broadly applicable to a wide spectrum of contemporary digital media and visual culture. Before proceeding, however, I offer a caveat. While introducing the various ways to deploy the concept of heterotopia, Michiel Dehaene and Lieven De Cauter caution against its overuse:

> In placing the emphasis on the centrality of heterotopia in the contemporary urban condition, however, we have to overcome an equally problematic pitfall that travelers in heterotopia have to face: when putting on heterotopian spectacles, everything tends to take on heterotopian traits. The following axiom, therefore, has been our guide: not everything is a heterotopia. At stake is to find out whether the concept of heterotopia could be made consistent or whether it should, on the contrary, be given up altogether because its vagueness has only brought confusion and continues to do so.[23]

When discussing heterotopic spaces and bodies in mediated environments, one confronts a similar conundrum: can everything and anything be heterotopic? As noted earlier, once you develop a heterotopic perception, or put on "heterotopian spectacles," you begin to see or sense traces and effects of heterotopia everywhere. Although I envision media heterotopia as a portable, versatile concept that can be readily applicable to various modes of mediation, a sweeping generalization that all audiovisual texts are media heterotopias is hardly discerning or productive. With this in mind, the following chapters will address these questions: What constitutes media heterotopias? How adequately does this concept describe or produce transnational imaginaries? And how effectively does it prompt enhanced levels of scholarship and spectatorship that recognize heterogeneous collaborations?

NOTES

INTRODUCTION

1. Some examples include Edward Dimendberg, *Film Noir and the Spaces of Modernity* (Cambridge, MA: Harvard University Press, 2004); Linda Krause and Patrice Petro, eds., *Global Cities: Cinema, Architecture, and Urbanism in a Digital Age* (New Brunswick, NJ: Rutgers University Press, 2003); Martin Lefebvre, ed., *Landscape and Film* (New York: Routledge, 2006); David Morley, *Home Territories: Media, Mobility and Identity* (London: Routledge, 2000); Hamid Naficy, *An Accented Cinema: Exilic and Diasporic Filmmaking* (Princeton, NJ: Princeton University Press, 2001); Hamid Naficy, ed., *Home, Exile, Homeland: Film, Media, and the Politics of Place* (New York: Routledge, 1999); and Lynn Spigel, *Welcome to the Dreamhouse: Popular Media and Postwar Suburbs* (Durham, NC: Duke University Press, 2001).

2. Here I refer to the works of such scholars as Giuliana Bruno, Edward Dimendberg, Michael Curtin, Ackbar Abbas, Hamid Naficy, Miriam Hansen, Lisa Parks, and John Caldwell.

3. Pam Cook, "Transnational Utopias: Baz Luhrmann and Australian Cinema," *Transnational Cinemas* 1, no. 1 (2010): 26.

4. Nataša Ďurovičová, "Preface," in *World Cinemas, Transnational Perspectives*, ed. Nataša Ďurovičová and Kathleen Newman (New York: Routledge, 2010), ix–x.

5. Ďurovičová, "Preface," ix.

6. Chris Berry and Mary Farquhar, *China on Screen: Cinema and Nation* (New York: Columbia University Press, 2006), 13.

7. Will Higbee and Song Hwee Lim, "Concepts of Transnational Cinema: Towards a Critical Transnationalism in Film Studies," *Transnational Cinemas* 1, no. 1 (2010): 10.

8. Mette Hjort, "On the Plurality of Cinematic Transnationalism," in *World Cinemas, Transnational Perspectives*, ed. Nataša Ďurovičová and Kathleen Newman (New York: Routledge, 2010), 13 (emphasis in the original).

9. Hjort, "On the Plurality of Cinematic Transnationalism," 13.

10. This includes a diverse assortment of people who are credited with technical, creative, or economic aspects of the filmmaking process.

11. Hjort, "On the Plurality of Cinematic Transnationalism," 13–14 (emphasis added).

12. Mapping is also used in the industry as concept and practice, such as "projection mapping" and "texture mapping." Although not specified as such, storyboarding, as a blueprint that anticipates the final product, is also a kind of mapping, in the sense that it is a mapping of the film's narrative, or a skeletal mapping that lays out the visual topography of sequences in a film.

13. John T. Caldwell, *Production Culture: Industrial Reflexivity and Critical Practice in Film and Television* (Durham, NC: Duke University Press, 2008).

14. Examples of recently published monographs on practical and visual effects include Shilo McClean's *Digital Storytelling: The Narrative Power of Visual Effects in Film* (Cambridge: MIT Press, 2007); Dan North's *Performing Illusions: Cinema, Special Effects and the Virtual Actor* (London: Wallflower Press, 2008); Stephen Prince's *Digital Visual Effects in Cinema: The Seduction of Reality* (New Brunswick, NJ: Rutgers University Press, 2012); and Kristen Whissel's *Spectacular Digital Effects: CGI and Contemporary Cinema* (Durham, NC: Duke University Press, 2014).

15. Renee Dunlop, Paul Malcolm, and Eric Roth, "The State of Visual Effects in the Entertainment Industry," *The Visual Effects Society White Papers*, July 2008, http://www.visualeffectssociety.com/resources/white-papers.

16. Sherry B. Ortner, "Studying Sideways: Ethnographic Access in Hollywood," in *Production Studies: Cultural Studies of Media Industries*, ed. Vicki Mayer, Miranda J. Banks, and John Thornton Caldwell (New York: Routledge, 2009), 176.

17. Ortner, "Studying Sideways," 176.

18. Such events are also useful in obtaining access to information and hearing the perspectives of industry insiders (e.g., "Transmedia, Hollywood" event at UCLA; SIGGRAPH; and 5D Conference).

19. John T. Caldwell, "'Both Sides of the Fence': Blurred Distinctions in Scholarship and Production," in *Production Studies: Cultural Studies of Media Industries*, ed. Vicki Mayer, Miranda J. Banks, and John Thornton Caldwell (New York: Routledge, 2009), 215.

20. Giuliana Bruno, *Streetwalking on a Ruined Map: Cultural Theory and the City Films of Elvira Notari* (Princeton, NJ: Princeton University Press, 1993), 4.

21. The *Oxford English Dictionary* defines "collaboration" as "united labor, co-operation; esp. in literary, artistic, or scientific work." The word derives from the Latin word *collaborare*, which is composed of *col-* (together) and *laborare* (to work, labor).

22. The filmmaking process is conventionally divided into three phases:

preproduction, production, and postproduction. The preproduction process, which occurs before the principal photography begins, includes scriptwriting, casting, financing, and so forth. The production process refers to the work of shooting footage in a studio or on location. Postproduction refers to all stages of work that occur after shooting the film, including editing, recording the musical score, adding visual effects and sound effects, and so forth. For a detailed description, see Richard Rickitt, *Special Effects: The History and Technique* (New York: Billboard Books, 2007), 374.

23. Michiel Dehaene and Lieven De Cauter, eds., *Heterotopia and the City: Public Space in a Postcivil Society* (London: Routledge, 2008), 6.

1 HETEROTOPIC MEDIA

1. The debate centering on the question "What is new about 'new media'?" is a vital one. I base my own arguments on the idea that, the hyperbolic rhetoric of "newness" notwithstanding, digital media do not mark a historical break but rather bring about significantly innovative changes—both symbolic and material—in the ways that imaginary realms are created and conceptualized in popular discourse and professional practices.

2. Paul Malcolm, "The Craft Association," in *Production Studies: Cultural Studies of Media Industries*, ed. Vicki Mayer, Miranda J. Banks, and John Thornton Caldwell (New York: Routledge, 2009), 218.

3. Michael Fink and Jacquelyn Ford Morie, "Introduction," in *The VES Handbook of Visual Effects: Industry Standard VFX Practices and Procedures*, ed. Jeffrey Okun and Susan Zwerman (Burlington, MA: Elsevier, 2010), 2.

4. Gene Rizzardi, "Common Types of Special Effects," in *The VES Handbook of Visual Effects: Industry Standard VFX Practices and Procedures*, ed. Jeffrey Okun and Susan Zwerman (Burlington, MA: Elsevier, 2010), 86.

5. Hye Jean Chung, "Global Visual Effects Pipelines: An Interview with Hannes Ricklefs," *Media Fields Journal*, no. 2 (2011), http://www.mediafieldsjournal.org/global-visual-effects/.

6. James Cameron, "Foreword," in Ian Failes, *Masters of FX: Behind the Scenes with Geniuses of Visual and Special Effects* (New York: Focal Press, 2016), 8.

7. Ron Brinkmann, *The Art and Science of Digital Compositing* (Burlington, MA: Morgan Kaufmann, 2008), 2.

8. Brinkmann, *The Art and Science of Digital Compositing*, 2 (emphasis in the original).

9. Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2001), 136–37 (emphasis added).

10. Dunlop, Malcolm, and Roth, "The State of Visual Effects in the Entertainment Industry," 6.

11. George Lucas quoted in Kevin Kelly and Paula Parisi, "Beyond Star Wars," *Wired*, February 1, 1997, http://www.wired.com/1997/02/fflucas/.