
Sound and Techno-Horror: *Kairo* and *Pulse*

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Over the last two decades the rising popularity of Japanese horror films and their impact on the international film market has been widely noted.¹ Since the release of Nakata Hideo's² 1998 urban ghost film *Ringu*, a number of directors have adopted approaches that depict specifically Japanese cultural and ideological conceptions of the ghost. Nakata Hideo's 1996 film *Joyūrei (Don't Look Up/Ghost Actress)* can also be identified as a significant example of the renewed interest in Japanese cinematic representations of spirits. The collective term that has been associated with these films is *shinrei-mono eiga* ('ghost story films').³ These films, in turn, have inspired a number of remakes worldwide. Notable interpretations include *The Ring* (Verbinski, USA, 2002), *The Grudge* (Takashi, USA/Jap, 2004), *Dark Water* (Salles, USA, 2005), and *One Missed Call* (Valette, USA/Jap/Germ/UK, 2008). These representations offer cinematic explorations of technophobia, social struggle, viral outbreaks in the digitised realm, and the distortion of biological/machinic distinctions.

¹ See Colette Balmain, *Introduction to Japanese Horror Film*, Edinburgh: Edinburgh University Press, 2008; Jay McRoy, *Japanese Horror Cinema*, Edinburgh: Edinburgh University Press, 2005; Jay McRoy, *Nightmare Japan: Contemporary Japanese Horror Cinema*, Amsterdam: Rodopi, 2008).

² In this article Japanese names are written following Japanese custom, with surname (or family name) appearing first.

³ McRoy, *Nightmare Japan*, p. 75.

Writing of Kurosawa Kiyoshi's *Kairo* (Jap, 2001)⁴, one of my case-studies in this article, Steve Jones notes that "the human self is not the only subject of infection here: the film form too suffers from Internet dial-up interference sound effects".⁵ Jones points to the unsettling nature of the film's use of sound, but offers only a brief account of how audio effects make a contribution to the film's representation of spirits. In his book *Japanese Horror and the Transnational Cinema of Sensations*, Steven T. Brown addresses more questions about the role of sound in *Kairo* and specifically how sound flows modulate affect in Japanese horror cinema. Brown's analysis addresses the important role sound plays in Kurosawa Kiyoshi's horror films, "privileging not only acousmatic voices, ambient noises, and sonic drones, but also the omission of sound and the dynamic manipulation of sound and silence".⁶ The book opens up a welcome dialogue about the sensory role sound plays in the film, especially the subtle use of sound at a microsound level to subtly affect the audio-viewer's reception of the film.⁷ Brown provides a rich analytical approach to the use of sound in *Kairo*, among other Japanese examples, in the context of transnational horror cinema. However, further questions are triggered by *Pulse*, the American remake of *Kairo*.

Jim Sonzero's *Pulse* (USA, 2006) regenerates questions of the role sound and music play in the film. Sonzero's version, with a screenplay by Wes Craven and Ray Wright based on the Japanese original, is defined here as a transnational remake. A remake offers "infinite open-ended possibilities generated by all discursive practice of a [film's] culture".⁸ In practice it is not just a case of identifying and cross-referencing a remake from prior knowledge of the previous film and intertextual references. It is also the impact of the extra-textual discourses that surround the audio-viewing experience – the ability of the remake to refer to more general structures of intertextuality (quotation, allusion, adaptation). *Pulse* is an example of a remake that deterritorialises its narrative from *Kairo*, taking a film made in one cultural context and remaking it in another. More specifically, *Pulse* universalises *Kairo* and its central themes to make it appealing for a global audience, prompting questions such as "How might a transnational perspective offer us a deeper understanding of a specific socio-political context, and of the politics underpinning film remaking more generally?".⁹

⁴ Commonly referred to in English as *Pulse*, although a better translation for *Kairo* would be *Circuit*.

⁵ Steve Jones, 'The Technologies of Isolation: Apocalypse and Self in Kurosawa Kiyoshi's *Kairo*', *Japanese Studies* vol. 30 no. 2, September 2010, p. 189.

⁶ Steven T. Brown, *Japanese Horror and the Transnational Cinema of Sensations*, Part 2, 'Ambient Horror: From Sonic Palimpsests to Haptic Sonority in the Cinema of Kurosawa Kiyoshi', Cham: Springer Nature/Palgrave Macmillan, 2018, p. 29.

⁷ The term 'audio-viewer' is used throughout this article, following Michel Chion, as a reminder that we do not see images and hear sounds separately, but that we 'audio-view' as a trans-sensorial experience. See, amongst other works by Chion, *Audio-Vision: Sound on Screen*, New York: Columbia University Press, 1994.

⁸ Robert Stam, *Film Theory: An Introduction*, Oxford: Blackwell, 2017, p. 202.

⁹ Iain Robert Smith and Constantine Verevis, eds., *Transnational Film Remakes*, Edinburgh: Edinburgh University Press, 2017, p. 2.

This article examines how culturally specific representations of ghosts, and their adaptations in the transnational remake, inflect these two films' different commentaries on a shared social concern: the effects of the rising importance of technology on everyday life in advanced societies. Drawing attention to these concerns, the films' depictions of the supernatural demonstrate cultural differentiation in the context of belief systems which, I will argue, impacts the portrayals of ghosts through both image and audio.¹⁰ By analysing the role of music and sound in *Kairo* and *Pulse*, a richer understanding of how socio-cultural contexts are represented by audio in transnational film remakes can be gained. First, this article will examine the relationship between industrial and commercial factors in the soundtracks for these films, considering thematic concerns that will be examined throughout the rest of this article.

Commercial Implications

Music and sound play a commercial role in transnational film remakes. In the case of *Pulse*, Valerie Wee has addressed the industrial contexts of the remaking process, focusing on a shift from the art house ethos of *Kairo* to *Pulse*, a more explicitly commercial product committed to predictable Hollywood horror film tropes. Wee provides a meticulous breakdown of the commercial concerns and production issues involved. This includes an assessment by the genre film division of the then newly formed Weinstein Company, distributed by Dimension films, which is crucial in tracking the youth-oriented commercial trajectory of *Pulse*. Wee observes how most aspects of *Pulse*'s production line were tailored to a specific niche audience. This includes the recognition of factors associated with the contribution of legendary horror producer Wes Craven as co-writer, and the choice of Jim Sonzero as director, hitherto known as a creator of pop videos.

Wee's assessment of *Pulse*'s creative contexts goes on to highlight how casting recognisable actors "would attract 'the right audience'".¹¹ This included Kirsten Bell, known for her role in the American teenage mystery TV series *Veronica Mars* (2004-7), Ian Somerhalder from the popular disaster-survival series *Lost* (2004-10), and Christina Milian, a popular R&B, teen-pop star whose third studio album *So Amazin'* was released just months before *Pulse*. Simone Murray addresses this further in her research on the political economy of media, in which she illustrates some of the ways in which audiences take on board media industry markers of cultural praise such as film awards.¹² As in Wee's argument, this includes

¹⁰ There is a wider debate which cannot be fully explored here around the term 'supernatural' in relation to Japanese culture: what is defined as supernatural in one culture is instead regarded as strange or mysterious, but natural, in Japan. Other terms, such as ghost, *yūrei* or *yōkai* could be relevant here. However, in the context of this article, I have chosen the term 'supernatural' to mean the irruption of the ghostly world into human experience.

¹¹ Valerie Wee, *Japanese Horror Films and Their American Remakes: Translating Fear, Adapting Culture*, London and New York: Routledge, 2013, p. 171.

¹² See Simone Murray, 'Materializing Adaptation Theory: The Adaptation Industry', *Literature/Film Quarterly*, vol. 36 no. 1, 2008, pp. 4-20.

the use of identifiable actors. It is also worth noting that *Kairo* features the popular Japanese model, television and film actor Kato Koyuki, who later gained recognition beyond Japan for her role in Edward Zwick's tale of the encounter between US and Japanese martial arts traditions, *The Last Samurai* (2003), starring Tom Cruise. Well-known actor and director Yakusho Kōji also makes an appearance as the ship's captain in *Kairo*.

While Wee's research provides a resourceful breakdown of how *Pulse*'s production worked to achieve its economic goals, she makes no specific reference to the contribution to this potential commercial agenda of the film's soundtrack. Both *Kairo* and *Pulse* make use of pre-existing music. Its function is to not only deliver a form of musical allusion, commenting on character perspectives, settings, and on the action more generally, but to direct awareness to extra-filmic associations, or what Kay Dickinson describes as "*micro-cultural stratification*".¹³ In both films, reliance on the audio-viewer's previous experience of pop music in given national markets fulfils both artistic and commercial purposes. In *Kairo* a sole example is used, overlapping the final shot of the film with the end-credit sequence. The lyrics of the pop song 'Hane: Lay Down my Arms' reinforce the narrative theme of nuclear fear and the apocalypse, pertaining to a broader socio-historical context in Japan, notably the country's devastating bombing in World War II: "*In the blue sky, fluttering, my exposed white breast has burned up*". Despite the lyrical relevance to *Kairo*, this upbeat rock-pop ballad is performed by Cocco, the famous Japanese pop/alternative rock singer/song-writer. In the year of *Kairo* (2001), Cocco released her third album, *Sangurōzu*, and also announced her retirement (but later returned). The use of this pop song in the film can be viewed as a commercial strategy to increase consumption of the film through synergistic appeal to an existing fan base.

Pulse integrates pre-existing pop songs throughout the film. Australian rock band Intercooler's 'Goodness of the Girl' is heard when the audio-viewer is first introduced to Mattie and her friends. The title of the song and its lyrics are an example of what Rick Altman calls editorialising, alluding to Mattie's characterisation as the hero, the good girl.¹⁴ The second pop reference is heard as Mattie is shown responding to her alarm clock on what is seemingly a typical morning for a college student. This appropriated music gives the illusion that the film is potentially a teenage rom-com as Mattie gets changed, applies her make-up, and checks her appearance in the mirror to the sounds of punk-rock band Overnight Low's track 'Delay The Wait'. The final example, 'Esto Es Lo Que Hay', from Venezuelan dance band Los Amigos Invisibles, is heard playing in the character Stone's car as he travels to the

¹³ Kay Dickinson, 'Pop, Speed and the 'MTV Aesthetic' in Recent Teen Films', in Kay Dickinson, ed., *Movie Music, the Film Reader*, London and New York: Routledge, 2003, p. 146.

¹⁴ See Linda Williams, 'When the Woman Looks', in Barry Keith Grant, ed., *The Dread of Difference: Gender and the Horror Film*, Austin, TX: University of Texas Press, 1996, pp. 17–36.

apartment of his deceased friend Josh in order to investigate his computer. This again plays an editorialising role, here alluding to Stone's ethnicity as a character of Hispanic descent. The Latin dance beats, however, can also be interpreted as providing a stark contrast to the deathly silence of Josh's apartment, and the ghost that waits in the darkness.

Regenerating Narrative

Kairo delivers a dystopian vision of the connections between communicative technologies, social isolation, and a viral outbreak that blurs the barriers between the human and the technological. Set in Tokyo, the film presents the parallel narratives of two protagonists: a young woman named Michi, who works at a plant nursery, and Kawashima, a university student. The two are brought together in the aftermath of various interactions with a website that invites people to meet a ghost. Michi investigates her co-worker Taguchi's suicide, and later, the deaths of her two other co-workers. Kawashima experiences strange phenomena when he starts using the Internet. The wider plot reveals that this is not the average computer virus, but ghosts who invade the world of the living through the Internet and other forms of technology.

This leads to a number of deaths and disappearances, eventually amounting to an epidemic. There is a sense of the unknown around the use of technology in the film. This is highlighted in Kawashima's character, who is first shown trying to sign up to the Internet. This is amplified when he meets Harue, a Computer Science postgraduate student: Kawashima struggles to recognise what a website address is, and admits to not knowing anything about computers. There is a factor of naivety that is also highlighted through *Kairo*, which draws attention to the fact that this is not a film of the last decade, but was produced when dial-up was a standard form of Internet access, and file-storage relied on floppy discs. The film's exploration of the dangers of technology is emphasised by characters, like Kawashima, who have only just begun to use the Internet and do not fully understand it.

Likewise, Jim Sonzero's *Pulse* (2006) explores the idea of the Internet as a bridge to alternate worlds through the experience of its main protagonist Mattie, an American university student. After investigating the suicide of her boyfriend, Josh, under mysterious circumstances, Mattie discovers that the dead are returning and attacking the living through forms of communication technology. The most striking narrative difference between the two films is the explanation, or lack of explanation, of why the ghostly invasions are occurring. *Pulse*, as will be explained below, does provide an explanation as to why the events are occurring, and in this way draws attention to their horrific nature. *Kairo* is more ambiguous, which opens the film up to provide a social study of Japan, as this article will demonstrate.

In *Kairo*, a graduate student named Yoshizaki who works with Harue explains to Kawashima the identity of the mysterious figure he has seen in the library, and why it seemed to vanish as Kawashima gave chase. Yoshizaki places Kawashima's experience in a broader context, explaining why ghostly appearances are occurring everywhere. He tells Kawashima that the spirits inhabit a space with a finite capacity. As a result of the space running out, they

have overflowed into our world, and "no matter how simple the device, once the system's complete it'll function on its own, and become permanent. The passage is now open ... that's how it looks".¹⁵ With the exception of his initial introduction to Kawashima and this scene in which he provides an explanation, Yoshizaki does not appear again in the film. Upon concluding his explanation, Yoshizaki also comments that "it's all hypothetical", leaving any real explanation open-ended, and raising questions as to who is responsible for the virus and why Yoshizaki can explain what is happening.

By contrast, *Pulse* delivers an explanation of the on-screen events. After Mattie tracks her dead boyfriend's computer to Dexter, the man to whom it has been sold, she is informed about a memory stick Dexter finds hidden underneath the machine, which contains a virus that will shut down the ghostly invasion. It comes to light that Josh had used his hacking skills to access the network of Douglas Ziegler, a fellow hacker who had unearthed something in his computer system that allowed spirits to come through. That 'something' is explained in detail later on in the film by Ziegler as a super-wideband telecom project, in the course of which new frequencies were discovered. However, as Ziegler continues to explain, these frequencies are also revealed to be on a spectrum that is used by the ghosts as a source of transmission into the world of the living.

The gap in the explanation as to why spectral presences are entering the human world is one of many narrative concerns left unanswered in *Kairo*. This reflects a cultural acceptance in Japan of narratives that do not privilege coherence, but instead what Valerie Wee has called "the Japanese aesthetic commitment to exploring ideas and possibilities that extend beyond what is known".¹⁶ In Japanese cinema the result is a filmic composition that delivers more than a logical narrative. As Donald Richie explains, "The idea that each unit should push the story through to its conclusion is not one to which Japanese literature, drama or film subscribes. Rather, separate scenes can be devoted to separate events."¹⁷ More significantly, Japanese cinema finds importance in events in a film that may seem minor or tangential in a Hollywood film. This has the effect, suggests Thomas Rimmer, of moving "inward with a narrative line pushing beyond story, often beyond character, to a general realm of feeling".¹⁸ This is where the analysis of music and sound can play a key role: in raising awareness of culturally determined modes of presentation.

Pulse, on the other hand, commits to a narrative of coherence, linearity, and clarification. Both Dexter and Mattie are goal-oriented characters, active in their motivations to stop the viral invasion from spreading. It is only at the last possible moment, when the counter-virus they upload fails and the ghostly network is re-booted, that their motivations

¹⁵ All English-language dialogue quotations are taken from the subtitles which feature on the DVD release by Optimum (2006).

¹⁶ Wee, *Japanese Horror Films*, p. 84.

¹⁷ Donald Richie, *Japanese Cinema: An Introduction*, Oxford: Oxford University Press, 1990, p. 8.

¹⁸ J. Thomas Rimer, *Pilgrimages: Aspects of Japanese Literature and Culture*, Honolulu: University of Hawaii Press, 1988, p. xx.

switch to an escape plan. This episodic structure is clearly identifiable as an example of the tight cause-and-effect progression of the dominant Hollywood film tradition, in which “goals are defined, created by reversals of intention, points of no return, and new circumstances demanding that goals be recast”.¹⁹ This initial comparison demonstrates how narrative organisation suggests cultural differentiation.

Ghostly Cultural Considerations

In *Kairo*, ghosts lack personality and human responsiveness; they represent a postmodern/post-humanist manifestation of a much older Japanese icon. Japanese ghosts, most commonly described as *yūrei* (translating as “faint/dim spirit”)²⁰, are historically portrayed as being female spirits wearing a white kimono with long unbound black hair, missing legs and feet. However, while Kurosawa’s ghosts “frighten through traditional strategies, including mutilated appearance, unearthly speech, and surprise, it is their relationship to – and constitution through – digital special effects technologies that promises their biggest scare”.²¹ Late-industrialist and technology-driven ideological values drive the ghostly visual presentations in *Kairo*. Manifesting in cyberspace, their exterior corporeal presence is merged with artificiality, taking the form of faded electronic spectral manifestations, and signifying how technology has become “inseparable from the self”.²²

This can be linked to the indigenous Shinto system of ritual practice based on the natural world, which observes that everything has a spirit, whether inanimate or living, and is regarded as being part of a unified single creation, as linguistic etymology suggests: “When someone dies, his or her spirit moves from *kono-yo* (the world of the living, or this world ‘here’) to *ano-yo* (the world of the dead, the world over yonder, ‘there’). As such, the two worlds exist simultaneously, occupying the same space and time, with permeable boundaries between the two.”²³ While in the folk beliefs of Shinto and more generally in Japan it is argued that the natural and social environments are interrelated, *Kairo*, however, draws attention to the loss of connection created by the effects of technology and the isolation that saturates society.

This is also amplified by the soundtrack, which uses the sounds of technology to signify increasing urban alienation. For example, as Kawashima sits in an amusement arcade, the looped melodies and the whirring of the machines create the illusion that he is interacting in a busy urban social space. Besides the sound of the technology itself and the appearance of a sole ghostly black shadow, however, Kawashima is alone. Furthermore, when the spirits’ voices are heard on the telephone, they are both disconnected from a visible bodily

¹⁹ David Bordwell, *The Way Hollywood Tells It: Story and Style in Modern Movies*, Berkeley, CA: University of California Press, 2006, p. 35.

²⁰ See Zack Davisson, *Yurei: The Japanese Ghost*, Seattle: Chin Music Press, 2015.

²¹ Kit Hughes, ‘Ailing Screens, Viral Videos: Cinema’s Digital Ghosts in Kiyoshi Kurosawa’s *Pulse*’, *Film Criticism* vol. 36 no. 2, Winter 2011-2012. p. 36.

²² Jones, ‘The Technologies of Isolation’, p. 186.

²³ Balmain, *Introduction to Japanese Horror Film*, p. 48.

representation and dehumanised by the use of heavy digital distortion. It is only when Kurosawa allows us to see and hear the ghosts that their humanity temporarily appears.

This is best exemplified in a scene towards the end of *Kairo*, as Kawashima and Michi are shown trying to flee the city, and Kawashima is directly confronted by a spirit. Refusing to acknowledge death or a belief in the supernatural, he maintains a defensive stance, denying what he sees, despite the apparent physical presence of the ghost in front of him. It is therefore the soundtrack that guides the audio-viewer's comprehension of this scene. After sourcing fuel in an abandoned factory, Kawashima becomes trapped in a room the door of which is framed with red tape. In response, a low synthesised drone enters the soundtrack, followed by a laboured, reverberating exhalation that merges into the dialogue at the word "*forever*". This is swiftly followed by an electronic, percussive effect, apparently non-diegetic in nature. The camera responds by coming closer to Kawashima's point-of-view, revealing the ghostly outline of a figure on the far side of the room, close to where Kawashima entered. "*Death was ... eternal loneliness*", utters this figure, in grainy, electronically manipulated speech. As Kawashima's breathing becomes urgent and he backs towards the door, grasping at the handle, the ghost utters the words "*Help. Help. Help*". Despite Kawashima's words of denial, his heavy breathing is reinforced by low, sustained electronic tones on the soundtrack, which reveal his fear.²⁴ The spirit repeats the same words about eternal loneliness as Kawashima continues to reason that the ghost is not real, despite conversing with him. He makes a rapid move in an attempt to catch the spirit and to prove that he will disappear, but as he grasps the spirit's shoulders an electronic rush of sound is heard before silence descends.

A low, pulsing electronic tone then enters quietly, creating a wave in volume as it dips and then crescendos while Kawashima, falling to the floor, slowly backs away from the spirit. The tone is sustained momentarily before a percussive marker brings in a prominent pulse. The camera reverts to the subject position of Kawashima as the spirit's voice enters, heavily bathed in reverse reverberation which "*makes the attack of the ghost's voice swell at the beginning of each word*"²⁵ as he states: "*I am ... real*". The pulsing continues under the dialogue, again delivered in waves of altering dynamics. A higher register of electronic sound and distorted audio rumbles create additional sound layering. As the spirit starts to move towards Kawashima and the camera, percussive waves and echoes of additional electronics are panned across the speakers from right to left, accompanying the swaying, fluctuating movement of the spirit. Intermittent static is also heard and, as the spirit comes closer to what is now the audio-viewer's eye-level, the sound of Internet dial-up enters the soundtrack, eventually breaking into a single sustained tone as if replicating a dead phone line and foreshadowing Kawashima's disconnection from life. Brown notes how in interviews

²⁴ Brown refers to the use of continuous pitches or clusters of frequencies as producing an ambient drone, a device utilised by Kurosawa as an aural device to highlight a disconnection from environments and temporal suspension in time despite a character's on-screen visibility. Brown explores how this creates an aesthetics of discomfort. See Brown, *Japanese Horror and the Transnational Cinema of Sensations*.

²⁵ Brown, p. 49.

Kurosawa states that he had wanted it to sound as if Kawashima “*had been trapped in a machine when he enters the factory room*”²⁶, again emphasising the theme of isolation.

Kairo draws parallels between human and spectral identity when organic dialogue is electronically manipulated through sound-design technology. There is ambiguity as the living and the dead commune, part of the film’s haunting critique of technologically induced alienation. As commonly noted in initial reviews of the film, *Kairo*’s spirits remind the characters of their isolation and loss of social interaction in the faceless realm of impersonal online global communications. Tom Mes observes how “*the horror lies not in the threat of an almighty, autonomous technology that might take over or destroy our lives, but in the effects that the presence of technology, and in particular communications technology like the Internet and mobile phones, has on our lives and our ways of communicating as human beings in society.*”²⁷

This commentary also connects to the backlash against the digital revolution on account of its creation of the *hikikomori* (‘shut-ins’) phenomenon, in which Japanese youths draw away from familial relations into an isolated existence, often communicating solely through online means. In *Pulse*, the spectres are presented as alien and as part of a virus that is a contagion of media. The horrific visual nature of the remake’s spectres defines them as unhuman, “*malevolent entities feeding on the life force of the living*”.²⁸ Again, however, the sound design of the remake reinforces the visual presentation of these spectres, which are now given a monstrous face. The visual illustration of the sonic is necessary in the US version because it confirms the horrific narrative meaning. This narrative reinforcement functions as part of the dominant Hollywood film model, and is a technique often adopted in American remakes. In the Japanese version, horrific sound and allusive visuals are all that is needed to establish narrative connotations.

In the latter half of *Pulse*, Mattie’s room-mate Isabelle is shown doing her laundry in the building’s communal laundrette. As she starts to place her clothes in the washer, the metal gate to the laundry room suddenly closes and a low electronic pitch enters the soundtrack over the ambient hum of the washing machine. The film cuts from a close-up of Isabelle’s face to a panning shot emanating from the rear of the row of dryers behind her, moving right to left as if someone is peering at her. This pan is accompanied by a breathy sound, electronically manipulated, which reinforces the fact that someone or something is sharing the space with her. Further electronic tones bleed from the initial drone before we cut back to Isabelle, whose attention is drawn to the sound of a power source shutting down, followed by a point-of-view shot of the flickering of a light bulb above her. The shifting electronic tones are still heard in the background, along with the continued whirring of the washer, together with an added layer of electronic tones that produce a pulse-like sound

²⁶ Brown, p. 49.

²⁷ Tom Mes, ‘*Pulse*’, www.midnighteye.com/reviews/pulse/, 21 June 2001.

²⁸ Wee, *Japanese Horror Films and Their American Remakes*, p. 173.

entering the soundtrack as the camera focusses on the failing light. We cut back to Isabelle's face looking up at the light and then re-adopt her point of her view, returning to the light as it flickers again before a reassuring surge of generator sound indicates that power has been restored.

As the film cuts back to Isabelle continuing to do her laundry, the original sustained electronic tone is maintained on the soundtrack while the diegetic sound of the dryer door opening is suddenly foregrounded, with all other electronic sound lowered in the mix, with the exception of a hollow-sounding wind effect. The film cuts back to a wide shot of the laundry room as a gush of electronic sound accompanies the sight of an item of clothing being thrown out of the tumble dryer, seemingly of its own accord. It is at this point that the sound layers start to build up and the sustained tones of high register strings are brought to the foreground – a generic Hollywood signifier of dread and suspense. A crescendo is heard from the strings after the first clothing item has fallen out of the machine, followed by a low human vocal sound, almost grunt-like, that is electronically manipulated to alter its recognisability as a distinctly human acoustic sound. The camera zooms in on Isabelle's face as the strings continue to rise in volume, joined by the return of the indistinct vocal sounds. Isabelle takes a forced breath as the lights are heard and seen flickering again, and the sound of the clothes being thrown out of the machine is amplified, producing a hard thud. A further sustained, high-pitched, electronic drone is then added louder in the mix than the strings. Further layering is provided by a wordless choral passage dominated by female vocals, adding to the otherworldly nature of the overall sound design. As Isabelle glances inside the machine, the blended choral music and electronic drones fade out, with just the sound of the flickering light heard in the foreground of the mix, along with the final sound of clothes shifting in the machine.

It is then that the monstrous spectre emerges from the dryer drum, head lunging, with what appears to be five arms and legs flailing out of the machine in an insect-like manner, scored by a cacophony of electro-acoustic vocal effects. A bird-like screech is unleashed, synchronised with the image of the screaming spectre's facial expression, leading the audio-viewer to believe that it produces this screech organically, along with the amplified sound of the spectre's hand slamming on the floor and the unearthly, metallic sound effects that accompany its movements. These effects dominate the sound-mix in this sequence, which also consists of electronic drones, the sounds of the flickering light, and manipulated choral voices. In the final moments of the scene the spectre unleashes a roar-like vocal sound and suddenly appears to suck the life out of Isabelle. A side-profile close-up, paralleling her with the spectre, is visually effective and concludes with Isabelle releasing a scream that is electronically manipulated before the cut to the next scene, the sound bridging the transition.

The grotesque visual representation of the spectre represents "*Hollywood's practice of illusionism*" nevertheless "*producing a coherent imaginary subject position*".²⁹ Despite

being portrayed as unknown malevolent forces, the spectres are rationalised according to this dominant model of cinematic practice. This is achieved by drawing attention to the representation of evil, which they embody through the use of shocking visual and aural effects. The demonised figures in *Pulse* are thus defined “*in traditionally Western terms of abjection, where any and all entities that flout culturally determined boundaries and categories are viewed as abominations*”.³⁰ The premise of this lies in the dialectics of opposition – which aligns the natural with the good and the supernatural/unnatural with evil – that Beth Braun notes in her discussion on American television shows with supernatural elements: “*there is of course nothing new in using supernatural settings and characters to play out narratives of good versus evil*”.³¹ Traditional Hollywood films often use these models of opposition as the underlying dimensions of conflict in their discourse. Many Hollywood supernatural horror films depict the supernatural/unnatural negatively. Polanski’s *Rosemary’s Baby* (USA, 1968), Friedkin’s *The Exorcist* (USA, 1973), and Rosenberg’s *The Amityville Horror* (USA, 1979), for example, suggest some of the ways in which “*Western/Judeo-Christian beliefs tend to relegate the spiritual to an alternative realm beyond that of the physical and view crossing between these realms as an unnatural and, ultimately, threatening act*”.³²

The cultural differentiation of good and evil is not found in *Kairo*, where the ambiguous, human-like, organic representations reflect a mixture of Buddhist and Shinto thought. Katarzyna Marak specifically draws on these spiritual teachings in her discussion of Japanese and American horror cinema, observing the dualistic Shinto/Buddhist understanding of the world – “*all things bear good and evil inside*”.³³ In Japanese Buddhism this is demonstrated through the interconnected concept of human beings as good and evil, while Shinto recognises that everyone has the intrinsic potential for good. This ambivalence is echoed by C. Scott Littleton, who expands on the dichotomy of good and evil, noting that in Shinto tradition “*all phenomena, both animate and inanimate, are thought to possess both ‘rough’ and ‘gentle’, or negative and positive, characteristics depending on the circumstances*”.³⁴ In summary, it is the blending of opposites, including the natural and supernatural, and striving to maintain the balance between nature and human relationships, known as *wa* (‘benign harmony’), that is at the core of Shinto theology.

Drawing upon *Kairo*’s representation of traditional Japanese cultural elements, *Pulse* presents a point of negotiation between cultural representation and re-representation. The

²⁹ Chuck Kleinhaus, ‘Marxism and Film’, in John Hill and Pamela Church, eds., *The Oxford Guide to Film Studies*, Oxford: Oxford University Press, 1998, p. 110.

³⁰ Mary Douglas, *Purity and Danger: An Analysis of Concept of Pollution and Taboo*, London: Routledge, 1966, quoted in Wee, *Japanese Horror Films and Their American Remakes*, p. 96.

³¹ Beth Braun, ‘*The X-Files* and *Buffy the Vampire Slayer*: The Ambiguity of Evil in Supernatural Representations’, *Journal of Popular Film and Television*, vol. 28 no. 2, 2000, p. 88.

³² Wee, *Japanese Horror Films and Their American Remakes: Translating Fear, Adapting Culture*, p. 65.

³³ Katarzyna Marak, *Japanese and American Horror: A Comparative Study of Film, Fiction, Graphic Novels and Video Games*, Jefferson, North Carolina: McFarland & Company, 2015, p. 188..

³⁴ C. Scott Littleton, *Shinto: Origins, Rituals, Festivals, Spirits, Sacred Places*, New York: Oxford University Press, 2002, p. 26.

audio-viewer experiences moments that are directly inspired by the original film in its narrative and visuals, such as the scene in *Kairo* when Yabe, one of Michi's co-workers, discovers one of the forbidden rooms. The meaning of the red tape that is used to seal off doorways or portals that contain the alienated ghost forms of the victims is never fully explained. These ghosts are instrumental, however, in helping to spread the contagion of loneliness through contact with figures like Yabe. As he enters one such isolated space, only ambient sounds are heard at first, building anticipation for the appearance of something inhuman in the unsettling quietness. Yabe walks towards the rear wall, which is shrouded in darkness. The lighting then shifts and the back wall is slowly illuminated to reveal a mass of red tape stuck over what was previously a window. As the end wall of the room fades into well-lit focus, an unaccompanied solo female voice drifts on to the soundtrack. Her wordless moan rings out as Yabe stands completely still before turning to look behind him, as if he hears her voice.

A woman is shown standing against the opposite wall, motionless and robotic, her hands by her side and her face masked by shadow. She is not the source of the melody being sung: her face and mouth show no movement. The next shot reveals a close-up of Yabe's terrified face before we cut back to a static shot of the woman from Yabe's point-of-view, as she begins to walk towards him. The woman's extended movements are played out in slow-motion as a high-pitched, synthesised sound accompanies her movement, voice-like in its delivery, filtering in and out as it too is slowed down in tempo and electronically manipulated. The slow-motion speed of the woman's movement is exaggerated as she is shown almost stumbling and contorting her body to regain her balance as she proceeds towards Yabe. The contrast of speed between the woman's much slower, unnaturally drawn-out movement and Yabe's reactive natural movement "*upsets the conventional 'naturalism' of the diegetic world, marking it as supernatural*".³⁵ While the ghost's movement could be described as an inhuman projection in the digital landscape of the film, it is also an example of the use of a Japanese performance style that alludes to a wider socio-cultural context.

The woman's movement is inspired by the avant-garde dance style of *butoh* (in its basic form it translates as 'dance step').³⁶ Born in Japan after the turmoil of the post-World War II era, *butoh* is a dance whose basic form relies on the body in various changing conditions; its minimalist movements place the body and face in a state of constant transformation as the *butoh* dancer "*endeavours to reveal his relationship to the inner world, to the unconscious*".³⁷ The organic nature of the form and use of aesthetic characteristics that

³⁵ Hughes, 'Ailing Screens, Viral Videos', p. 32.

³⁶ The term *butoh* is made up of the characters 舞, meaning to 'dance', and 踏, meaning 'to step' which would be rendered as *butō*. However, because of the cultural connotations attached to terms for 'dance' in Japanese, the Hepburn Romanization is used here with an introductory definition.

challenge western archetypes of beauty produce distorted and grotesque physical imagery in order for the dancer, again in the words of *butoh* co-founder Hijikata Tatsumi, to “*reveal the human being in his banality*”. Death is a theme often explored in *butoh*. Co-founder Ohno Kazuo defines it as a means “*to meander, or to move, as it were, in twists and turns between the realms of the living and the dead*”.³⁸ Considering this meaning, some features of *butoh*, such as the crumbling white painted body mask, have often evoked the trauma of the World War II bombings and can be read as a creative expression of pain and anxiety regarding nuclear war – a method of performance centred on the acceptance and contemplation of imperfection and the constant flux of all things. As Hijikata Tatsumi puts it: “*The dancer, through the butoh spirit, confronts the origin of his fears: a dance which crawls towards the bowels of the earth.*”³⁹

This example from *Kairo* demonstrates how sound, music, and dance can be interpreted more deeply to understand a socio-historical context, but also how that context can be adapted to inflect contemporary themes. A national dance tradition is used here to highlight metamorphosis as a metaphor for the breakdown of communication in a technologically motivated society. *Pulse* adopts a similar approach, delivering a vulnerable moment in the film in which the inhuman and metaphorically faceless viral spectres are humanised, in order to emphasise their ontological and existential threat. Stone, an equivalent to Yabe’s character, visits the deceased Josh’s apartment and encounters a spectre in a moment that adapts the scene described above in *Kairo*. Stone hears muffled, high-pitched voices coming from Josh’s bedroom; the door is sealed with red tape. As Stone forces the door open, a low drone is heard, paired with higher pitched pulsing tones, followed by a string *glissando* that is sustained as he starts to look around the room. A lingering high-pitched ring is heard, joined by a soprano vocal delivering two tonal moans, suggesting a living presence. As Stone walks towards the bathroom, the layers of sound start to increase. The high-pitched pulsing tones fade in and out of the mix, while a continuous electronic buzzing and whispered vocal effects are added, before a thud is heard from the bedroom. Stone turns, reacting to the sound.

Here a range of voices becomes more distinct and is placed high in the mix. Bathed in reverberation and electronically manipulated, the words require concentration on the audio-viewer’s part to comprehend their meaning. Emerging from the multiple voices are the words “*help me*”. At this point, the sound has built up with the pulsing tones and electronic buzzing reinforcing the suggestion that an unnatural presence shares the space. As Stone moves back into the bedroom, the camera’s focus widens, and he sees that the window is covered in red

³⁷ Hijikata Tatsumi in Jean Viala and Nourit Masson-Sekine, *Butoh: Shades of Darkness*, Tokyo: Shufunotomo, 1988, p. 17.

³⁸ Yoshito Ohno and Kazuo Ōno, *Kazuo Ohno’s World from Without and Within*, Middletown, CT: Wesleyan University Press, 1999, p. 205.

³⁹ Hijikata Tatsumi in Jean Viala and Nourit Masson-Sekine, *Butoh: Shades of Darkness*, p. 188.

tape similar to that which confronts Yabe in *Kairo*. The next shot adopts Stone's point-of-view, followed by another shot in which the camera is positioned directly in front of Stone's face, adopting the perspective of the ghost. This contrasts with *Kairo*, where Yabe's point-of-view dominates the equivalent scene.

As Stone stares directly at the camera, the upper layers of electronic sound subside and an amplified bass drone sound and crackle effect are heard before the camera shifts back to Stone's point-of-view. This first shot, as Stone sees something in the shadows, creates a parallel between the spirit and the audio-viewer, since when he looks directly at the camera, he is essentially looking at us, suggesting that perhaps we have become the ghosts. This aligns with the film's commentary on our relationship with technology and how, instead of bringing people together, it encourages an isolation that may result in us becoming ghostly shadows of our former selves as we rely more and more on technology to communicate.

After this close-up of Stone's reaction there is a cut to his point-of-view as an arm becomes visible in the dark shadows across from him. High-pitched tremolo strings enter, along with a low electronic drone slide; electronically manipulated choral vocals are heard in the mix as the strings, also modified, dramatically rise to a crescendo. String *glissando* effects intermittently enter among the tremolos as the ghost begins to step out of the shadows and walk towards him. We cut back to a close-up of Stone's frozen face before the camera resumes his point-of-view, the film utilising the same shot/reverse-shot approach as *Kairo*. While the female ghost in this sequence has the same human-like appearance as her equivalent in *Kairo*, her image as she walks towards Stone suddenly flickers like a computer-generated hologram.

The spectre's wavering movement could be read as a parallel of the *butoh* dance form that inspired the equivalent scene in *Kairo*. Although negotiating a re-working of this scene, however, there is a culturally specific meaning that is lost by the computer-generated representation of *Pulse's* ghost. Despite *butoh's* improvisatory nature, its focus on the consciousness of the body itself is rejected by the artificiality of *Pulse's* replication. This is reinforced by the combination of the crackling of static with a synchronised flickering visual, as if the ghost is being transmitted into the room. As she gets nearer to Stone, his point-of-view shifts out of focus, while the soundtrack continues to crescendo: the vocals build up, producing a flood of wordless sound, with the higher register string tremolo and electronic bass. The ghost's face begins to come into focus and we cut back to Stone with a percussive thud as he jumps across the bed. This gives purposeful momentum to his action as he begins to rip the red tape off the window, looking outside as the camera, shooting from street level, captures his face looking out, one might suppose, at humanity.

As Stone tries to escape, a more distinct ticking beat is heard. A sustained, higher register electronic tonal layer is added, producing what is almost a ringing sound. The next shot cuts to a static view under the bed, with Stone quickly falling to the other side of it and into shot, the audio-viewer adopting his point-of-view as he looks around for the spectre. All sound drops to a minimal level at this point, with the exception of the lower drone and the

sudden build-up of a second wave of electronic sound as Stone suddenly looks up in horror. The next shot focuses on his upper body, and then reverses back to his point-of-view as the face of the ghost slowly appears over the top of the bed, looking down on him. The block of electronic sound is reinforced by the return of the high-register tremolo strings, before this wall of sound is interrupted by the sound of a camera shutter in a double burst of sound. This is synchronised with the face of the ghost jolting forward, as if it is being projected into the moment by the audio effect. Her face now comes into focus: letting out an inhuman screech, she leaps forward, her hands clutching the side of the bed. This replaces the murmuring vocal delivery heard earlier in the scene with an alien-like sound.

Any parallel with the series of shots in *Kairo* in which Yabe's point-of-view is adopted as the ghost peers over at him is again diminished. The artificiality of the spectre in *Pulse* is reinforced as her face lunges forward towards Stone and into a close-up; a visual effect casts her into the physical space of the room as if she has materialised from a computer. Her movement is also marked with a distorted bird-like screech. Stone's scream follows at this point, his voice electronically manipulated to signify an out-of-body sound. The accompanying visual shows a computer-generated image of his face ascending towards the camera, which adopts the ghost's point-of-view. We then cut to a black screen, marked by an electronic thud as he becomes a technological avatar.

In *Pulse*, the score reinforces narrative coherence. The audio-viewer is made aware of what is about to happen through the highly structured nature of the Hollywood score. As Peter Hutchings observes, music in the horror film "*is often foregrounded as a presence [...] this can manifest itself in shocking or discordant effects of various kinds that seek to support or amplify visual moments of shock or suspense*".⁴⁰ This approach contrasts with the sense of disembodiment that *Kairo* creates through the electronic audio treatment of its human voices. The use of reverberation and echoes disconnects voice from body. Coupled with the fact that vocal delivery moves between different sound channels, this challenges the audio-viewer's ability to form a coherent narrative interpretation. Alternatively, the animalistic approach to the spectres' voices in *Pulse* does not create such a challenge. It is the scoring and character dialogue that articulates their motivations.

Scoring Technological Concern

While the treatment of music and sound draws attention to culturally specific representations of the supernatural in *Pulse*, and this invites comparisons to *Kairo*, the scoring is also indicative of wider social concerns. The apocalyptic outcome of *Pulse* is symptomatic of a proliferation of, and consumer reliance on, reproductive electronic and digital technology. The putatively infectious nature of the technology can also be linked to broader social concerns in the films, in relation to their period of production and the difference in technological advancements.

⁴⁰ Peter Hutchings, 'Music of the Night: Horror's Soundtracks', in Graeme Harper, Ruth Doughty, and Jochen Eisentraut, eds., *Sound and Music in Film and Visual Media: An Overview*, New York: Continuum, 2009, p. 224.

Pulse, released in the year preceding the introduction of the iPhone in summer 2007, is littered with footage of people using mobile devices that to an audio-viewer today would seem outdated. The prolific use of mobile technology presented throughout the film, however, reminds us of a society beyond the world of the film which constantly needs to update its forms of consumer technology. Computers also play an integral role in *Pulse*. In one scene after Josh's death, Mattie and her friends are shown using a form of Messenger on their computers; even as a ghost, Josh participates in communication through this medium, using the software to ask his friends for help.

Pulse's director Sonzero recognises this and heightens *Kairo's* initial focus on the Internet as the source of the ghosts' invasion by drawing attention to the devices in a much more overt manner to demonstrate the dangers of technological advancement – which today are more closely associated with the heightened use of social media and cyber bullying/stalking, themselves referenced in the film during a scene near the beginning when Mattie attends a psychology class. The focus on the devices has an impact on the use of diegetic and non-diegetic sounds in the film. Stark audio design is heavily electronically manipulated to emphasise the very sounds of the technology that endanger its users. This is highlighted in a number of scenes in which people are shown using mobile phones and computers, such as in the scene where Mattie, Isabelle, and Tim meet in an Internet café to discuss the mysterious package that Josh has sent Mattie; the diegetic sounds of computer games and clicking keyboard keys litter the soundtrack, and, placed high in the mix alongside their dialogue, emphasise the constant use of the devices.

Kairo, however, released after the turn of the millennium and the rise of the Internet, explores the fears and anxiety of a technologically advancing society with concerns about isolation and social dysfunction. This is the case in Japan with thriving telecommunication companies like NTT DOCOMO, Inc. and the multinational information technology NEC Corporation constantly delivering new products. Notably, therefore, *Kairo* expands its critique to include the institutional structures that have promoted these technologies through commercialism. This is particularly implied when Michi and Kawashima are shown sailing away from an apocalyptic wide-angle shot of a city. This backdrop is Tokyo, the once thriving late-capitalist technological epicentre now represented as a stark and desolate urban void. This lifeless cityscape is accompanied by the sounds of the very thing that is feared to be lost because of an immersion in technology: humanity.

Kairo's non-diegetic music often features orchestral scoring, the use of acoustic instruments adding a sentimental humanism to the urban desolation of the visuals. This is particularly the case when Michi and Kawashima are shown fleeing the city, driving through the deserted streets of Tokyo, the camera adopting Michi's point-of-view behind the wheel, accompanied by a suitably propulsive orchestral score. Whispered voices are heard throughout the film – victims calling out for help – and at one point in the film, when Junco is consumed with her own loneliness and loses her will to live, she literally disappears, leaving a black stain on the wall of Michi's apartment. As Michi calls out for her friend, the stain turns

into ashes and a gust of wind suddenly fills the apartment. With the ashes swirling around, a final disembodied ghostly wail is heard on the soundtrack before the ashes disappear through the open balcony door and window.

A similar vocal audio effect is heard earlier on in the film when Yabe visits Taguchi's home, whose shadowy stain remains on the wall in the very spot where he committed suicide. However, as Taguchi appears to see his friend in place of the shadow and asks him what happened, the film cuts to a medium shot of the wall, revealing Taguchi's shadow again. An electronically manipulated wail with a *glissando* effect is heard over the lone, female, and wordless vocal that dominates the soundtrack at this point in the film. As Jones observes, "*the humans are ultimately subject to introspective decline. Fear is propagated by technology in 'Kairo', but it is coupled with the longing for contact, not a desire for annihilation*".⁴¹ This narrative contrasts with *Pulse*, which focuses its commentary on the parasitic media devices themselves and the control they have over people, infecting them like a virus. In *Pulse* the technology becomes the other, while in *Kairo*, the threat is represented as coming from within the subject.

In one of the final scenes of *Pulse*, the audio-viewer is made aware of the full role played by technology in these spectral attacks. Mattie and Dexter, having fled the city, are resting in a stolen car. As the camera zooms in on the pair sleeping, chromatic shifts played by strings are present in the underscoring, signifying unease and thus the oncoming supernatural threat. Crackles of radio static enter as a member of the United States Army delivers an emergency announcement heard by Mattie: "*cell phones, computers and PDAs are all conduits for the invasion. Dispose of all technology before proceeding to these locations.*" As the camera zooms in on Mattie's mobile phone on the dashboard, high-pitched string tremolos enter the soundtrack. In her naivety she checks it, rather than turning it off. The tremolo strings continue with the addition of a percussive thud, swiftly followed by metallic groans from the roof of the truck. High sustained strings slowly enter and the camera adopts the point-of-view of someone peering in at the window, accompanied by low electro-acoustic vocal effects. As the threat rises in intensity, so does the music. As Mattie wipes the condensation off the window, the groans momentarily fade as the glass is suddenly smashed and the screech of the spectre that has broken through is answered by Mattie's own screams.

Interestingly, as the spectre is shown peering in at Mattie, her ghostly reflection and hollow blacked-out eyes are similar to the more human representations of *Kairo*'s spectres. This may allude to the blurred barriers between technology and its users, signifying a symmetrical view of the interaction between human beings and media. The ideological values of the society represented in *Pulse* place such importance on this technology that, even when Mattie knows that her cell phone is a trigger after hearing the announcement on the radio, the impulse to check it is still maintained. As Wee observes, "*'Pulse' depicts technology largely*

⁴¹ Jones, 'The Technologies of Isolation', p. 189.

as a tool and a conduit, while the supernatural threat is ultimately introduced by human actions and decisions."⁴²

The direct parallel between ghost and human is also prevalent throughout the scenes in the film in which victims of the curse appear on webcams as ghostly apparitions. They are presented in passive, lifeless states, or inflicting harm on themselves. One is shown wearing a plastic bag over his head and is repeatedly shown failing to pull it off: the image keeps cutting and going back to the beginning of the feed. The idea of showing victims reacting through a webcam feed is regenerated from *Kairo*. This can be interpreted as a form of identity collapse within the very frame of the remake, as the "*images effectively collapse the boundary between (the images found in) the Japanese original and the remake, even as these same images resonate with actual, real world, web-cam images that both films' audiences are familiar with having engaged in similar digital forms of communication in actual life*".⁴³ In this way the original film is invading the remake, in a parallel with the ghosts' invasion of reality, symbolising the virality of the effects of technology through the medium itself.

The soundtrack of *Pulse* feeds on the media proliferation emphasised throughout by the images in the film. This is demonstrated in the opening credits, which deliver a prologue dominated by sound. An electronic throbbing is heard prior to the opening shots, produced by a manipulated sound effect of what could be a fan rotating, perhaps representing the sound of a computer fan. A low electronic beat accompanies the pulse, joined by waves of percussive low bass, repeating the same three-note pattern of three percussive thuds followed by an additional electronic moaning. A guitar scratch effect is heard, followed by an electrical flicker that accompanies a visual ripple of white light across the logo for the US theatrical distributor, Dimension Films, followed by the next title credit, bearing the logo for one of the three production companies involved, Distant Horizon. As this disappears from the screen, a ghostly electro-acoustic wind-like effect is heard over the consistent, layered, pulsing *ostinato* which sounds like a computer system starting up. As the first words of the main credits appear on screen a more distinct electro-acoustic static enters, breaking away into smaller sound bites signifying computer coding. Digitised sound effects are synchronised with the appearance of the main credits displayed in the format of digital data and shown scrolling across the screen before breaking up like fragmented pieces of coding. These are followed by a computer boot-up sound effect and a close-up of an email text box in the background fading to black as the credits continue to appear.

As more digitised images begin to appear and then fade, a number of human voices are heard on the soundtrack, one after the other, linking the human to the digitised nature of the opening credit sequence. The soundtrack and images carefully link to different forms of digital technology in the background: "*At TCC Northeast, we have the largest cellular network in the five-state... Join the fun at Mondo Net. You get instant access to your friends.*" The credits continue with the same electronic *ostinato* pulsing away on the soundtrack, with

⁴² Wee, *Japanese Horror Films and Their American Remakes*, p. 175.

⁴³ Wee, *Japanese Horror Films and Their American Remakes*, p. 176.

swells of sustained organ tones entering at different points across the sequence. The voices become layered and the sounds of digital flickers, static, and crackling become more intense, until individual voices can no longer be identified. Instead the audio-viewer is shown various lines of computerised text taken from a number of media interfaces, including social media. These lines of text are layered over one another, scrolling across the screen from right to left. A moving human mouth appears behind the layers of messaging text as the words become more and more congested. This discordant mix of voices is overshadowed by a gush of heavily manipulated sound, replicating a rising *glissando* on multiple strings, but speeded up and altered to deliver an explosion of sound that is seemingly sucked into a vacuum along with the *ostinato*. All sound is then shut down with a final sound perhaps replicating the noise of a computer system powering down. The word *Pulse* appears on the screen, flickering once over a blurred backdrop of coloured shadows: people on a college campus, the sound of their voices leaking onto the soundtrack.

The superimposition of sounds heard in the opening credits of *Pulse*, created by composer Elia Cmiral's mix of electronic and acoustic materials, points to the inseparability of modern-day society and digital media.⁴⁴ Throughout the film, the composer uses strings playing in the upper registers to create spectral sounds that are often joined by electronically altered vocal effects, synthesised pulses, and electronic sonic counterparts. This mix produces a homogenous soundscape that reflects the socio-cultural concerns of the film – the inseparability of the spectres, representing technology and its users. The relentless drive of the soundtrack never seems to pause for breath as it mirrors the momentum of the images, which continually deliver visceral shocks. *Kairo* also utilises electro-mechanical sound effects to introduce the film. Brown notes how, prior to the production credits, "*for a full 17 seconds we hear nothing but the chirping, squealing sounds of a computer modem handshaking with a server to establish a connection so that the transfer of information may occur*". While this moment can be linked to *Pulse*'s opening credits, Brown goes on to describe the dial-up sounds as being "*the voices of electronic 'circuits' (the literal meaning of the word 'kairo') communicating with each other*".⁴⁵ By likening these sounds to a form of dialogue, they are humanised, connecting those who once lived and use the network as a channel to re-enter the world with a living humanity who risk becoming disconnected by an over-reliance on the very same digital network and more broadly, technology at large. *Kairo*'s opening is in stark contrast to the cacophony of sounds with which *Pulse* opens – a much more aggressive assault on the senses that draws attention to the film's monstrous presentation of ghostly transference.

⁴⁴ Discussing the score for *Pulse* in an interview with Randall D. Larson, Cmiral describes how he "*used the Prague Orchestra, recording on the Internet for a couple of days, a large string ensemble with no brass and four or five clarinets playing the highest possible tone*". See Randall D. Larson, 'The Splintered Scores of Elia Cmiral', 27 November 2008, http://www.buysoundtrax.com/larsons_soundtrax_11_27_08.html.

⁴⁵ Brown, *Japanese Horror and the Transnational Cinema of Sensations*, p. 48.

Kairo, in comparison, makes use of silence, guiding the audio-viewer to reflect on the ways in which humanity is represented throughout the film. In the scene in which Michi is shown visiting Yabe's apartment after he has seemingly gone missing, for instance, there is a sudden shift in the soundtrack. As Michi enters the apartment, the use of silence creates an inhuman feeling: only ambient sounds accompany Michi's voice. An ashen shadow is shown on the wall, a visual representation of emptiness and loss, paralleling the muted soundtrack. This dissonance triggers a more active interpretive engagement from the audience owing to the silence's rupturing of conventional filmic transparency. As Michi stands in the apartment, the shot of her looking at the shadow is reversed and "*ambient noise drops out completely in the mix*"⁴⁶, resulting in the audio-viewer being placed both visually and aurally in the position of the ghost. The words "*help me*" pan left and right to create an effect of closeness, as if they are rising from the audio-viewer himself/herself. They are heard clearly despite the reverberation and filtering effects that are applied, and at a volume that suggests Michi is being spoken to directly as the only person in the room. However, Michi's response reveals that she does not seem to hear Yabe's spirit's words. Her facial expression remains neutral as her eyes search the shadow on the wall.⁴⁷

The complete elimination of ambient sound in the mix emphasises the fact that the words fall on deaf ears. This is reinforced further through the absence of any diegetic sound as Michi leaves the room, with not even the sound of the door heard closing behind her. In this scene, the voice is present but unable to break through into the diegesis. Our struggle to rationalise this meaning adds to the ghostly moment. After adopting Yabe's point-of-view we cut to a static position looking into the room from the door, with Yabe's shadow now in front of the camera. The words "*help me*" are repeated a fifth time, creating a verbal transition across the shots and creating a distance from the source. However, this distance is interrupted for the sixth and final utterance, with the volume increased as if the ghostly disembodied voice is infecting both the audio-viewer's perspective and Michi herself. As Yabe's humanised plea to Michi goes unheard, the shot/reverse shot pattern that links him to her is destabilised: his disappearance unsettles the privileged position of the human being as the primary structuring force of the shot. This reinforces the fear, articulated by Jones, that "*[t]he more we use technology to expand beyond the means of the anatomical self, the more we fear technology is somehow intruding upon the self*"⁴⁸, until it is no longer human.

⁴⁶ Brown, *Japanese Horror and the Transnational Cinema of Sensations*, p. 46.

⁴⁷ Discussing the previous scene, in which Michi calls Yabe on the telephone, Steven T. Brown notes how Yabe's voice during the phone call is an example of what Michel Chion means by the 'acousmatic', "*the auditory situation in which we hear sounds without seeing their cause or source*" (Chion, *Film: A Sound Art*, New York: University of Columbia Press, 2009, p. 465). Yabe's voice is then 'de-acousmatised' once we discover that Michi will go to speak to him directly, which will establish the source of the disembodied voice on the telephone. However, Brown observes that Yabe's voice is 're-acousmatised' once more as his body is no longer physically present, with just the black body-like stain on the wall remaining. See Brown, *Japanese Horror and the Transnational Cinema of Sensations*, pp. 44-45.

⁴⁸ Jones, 'The Technologies of Isolation', p. 188.

Analysis of film remakes, I have been arguing here, must consider the "*material phenomenon produced by a system of institutional interests*"⁴⁹ through an analysis of sound and music, particularly when culturally specific representations need to be considered. Technophobia, for example, may transcend national and cultural boundaries, providing an example of a fear becoming universal across capitalist, technologically advanced societies, since ideological foundations dominate the manner in which these anxieties are presented in audio-visual constructs. Analysis of a film like *Kairo* and its transnational remake, *Pulse*, offers new perspectives on how technology undermines social cohesion through culturally determined means. Furthermore, the audio-visual examples analysed above draw attention to the role sound and music must play not only in the critique of technological advancements in these particular examples, but in future assessments of transnational film remakes and their film scores.

⁴⁹ Murray, 'Materializing Adaptation Theory', p. 10.