Virtual Technology in Netflix K-Drama:
Augmented Reality, Hologram, and Artificial Intelligence

JINHEE PARK[1]
Handong Global University, South Korea

South Korean television shows are so prominent on Netflix that "K-dramas" is a default search keyword. K-drama is considered a "genre" alongside action, anime, comedy, and romance. Analyzing two Netflix K-dramas, *Memories of the Alhambra* and *My Holo Love*, this article theorizes how K-dramas adopt new media and technology both as subject and narrative devices, incorporating the pertinent characteristics of each technology into a narrative. The article also examines wearable augmented reality technology and artificial intelligence holograms as narrative devices. In the digital platform era, K-drama adopts information and communication technology as televisuality through remediation. Central to theorizing virtual technology as dramatic content is the spatiality of the relationships between the real and the virtual, diegetic, and commercial worlds. Netflix K-dramas depict current information and communication technology and simulate the complications that arise when virtual gestures replace real gestures. This research theorizes how the enmeshment of digital and physical space transforms spatial boundaries, televisuality, and screens. By doing so, it evaluates Hallyu content as a site for technological hybridity and televisual studies.

Keywords: K-drama, Hallyu, Netflix, new media, media platform, ICT, augmented reality, virtual reality, hologram, artificial intelligence

In recent years, the influence of Netflix on K-dramas has grown, as Netflix has expanded from a distribution platform to a content-producing global studio. In 2020, South Korea (hereafter Korea) became the country with the greatest number of Netflix co-commissions in the world (Lotz, 2020). Netflix invested $700 million in Korean content through 2020 and produced more than 80 original shows and films (Lahiri, 2021). These investments have impacted the characteristics and content of K-dramas.

Jinhee Park: drjinheepark@gmail.com
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Due largely to the growth of Netflix's influence in global cultural markets, including in Korea, digital media scholars have primarily discussed the effects of global platforms, including Netflix, in terms of media imperialism and platform governance in the digital platform era. Media scholarship has critically assessed platform dominance in the context of "platform capitalism" (Srnicek, 2017), "platform imperialism" (Jin, 2015), "network effects: winner-take-all effects" (Nieborg & Poell, 2018, p. 4278), and "gatekeeping powers" (Aguiar & Waldfogel, 2018). Media scholars have also discussed the rising importance of platforms in the new digital ecosystem by noting that cultural production is becoming "platform dependent" (Nieborg & Poell, 2018, p. 4276), relying on platforms as essential "infrastructure" (Nieborg & Poell, 2018, pp. 4276, 4281) and "vital utilities" (O'Meara, 2019, p. 1; Plantin & Punathambekar, 2019). Media scholarship has thus far held these two significant agendas—platform control and platform dependence—and discussed them in terms of political economy, infrastructural systems, and the media industry.

Popular culture frames used to analyze Netflix as a platform have emerged from the intersection of television, digital media, and cinema studies (Lobato, 2019). Therefore, Netflix has been defined broadly and variously as "a global media corporation, a software system, a big-data business, a cultural gatekeeper, [and] a mode of spectatorship" (Lobato, 2019, p. 21). Ramon Lobato (2019) suggests two research methodologies that can apply to Netflix: television studies and an approach outside television studies, which includes new media theory, Internet studies, and platform studies (p. 22). He argues that the two approaches should be crossed rather than separated to better answer the strategic question, "What is to be gained from studying TV under the rubric of new media?" (Lobato, 2019, p. 30). Lobato (2019) also adds a research agenda: "Whether emergent media forms should be understood in terms of their similarities to past media or through entirely new paradigms" (p. 30). Incorporating the boundaries between new media, cinema, and Korean Wave (*Hallyu* in Korean) studies, this article explores K-dramas that incorporate hybrid technologies and virtual reality into their narratives. Reflecting the modern convergent media environment, my analysis focuses on the presence of new technology in television narratives, including augmented reality (AR), artificial intelligence (AI), and holograms. This article probes K-drama's incorporation of ICT content as one way in which K-drama navigates the platform era for its own sustainability. By doing so, this article asks what is to be gained by studying Netflix K-dramas specifically as a medium where ICT functions as both the infrastructure of distribution and the source of narrativization.

More specifically, looking at "a series of internal changes" (Lobato, 2019, p. 33), this article explores the characteristics of content that is affected by the infrastructure of its own platform, including the ICT environment that makes new platforms possible to begin with: How do Netflix K-dramas reflect ICT in the platform era, and how has this changed content technologically and aesthetically? I use an "inside out" lens (Elsaesser & Hagener, 2015, pp. 204–205), examining Netflix K-dramas through textual analysis alongside technological and industrial perspectives. Drawing on Bolter and Grusin's (1999) concept of "remediation," where one medium is translated or represented in another (p. 45) and Caldwell's (1993) definition of "televisuality" as the stylistic exhibitionism inherent to the television medium (p. 77), this article analyzes how, in the platform era, the aesthetics of remediation in Netflix K-dramas create a new televisuality.

Transmedia and ICT in Hallyu

Hallyu has become globally popular in the 21st century, and ICT has impacted Hallyu's evolution. As Dal Yong Jin (2016) notes, one of the critical shifts in Hallyu trends was the influence of video games, animation, and social media, which expanded Hallyu from East Asia to a global audience beginning in 2008, following proactive Korean government policy (p. 5). In historicizing K-dramas in America, Sangjoon Lee (2015) acknowledges that the major audience has shifted from Korean and Korean-American viewers to the mainstream media market and a broader, non-Korean audience, as K-drama changes its major distribution from Korean-language television stations and video rental stores in U.S. Koreatown neighborhoods to video-streaming websites and social media (p. 172). K-drama was distributed by immigrants through visual media like videotapes, CDs, and DVDs in North America, then moved to a few Korean and Asian television channels until these distribution channels were replaced by Internet-based streaming, such as mysoju.tv, DramaCrazy.net, and allkpop.com (Ju, 2020, p. 33; Lee, 2015). Global fandom beyond Asian viewership began when K-drama became available online. Currently, SVOD platforms such as Amazon Prime Video, Netflix, and Hulu are the primary global distributors of K-dramas (Ju, 2020, p. 33). These digital platforms have moved further away from web addresses and names ending with *.tv, .net,* and *.com* to join the app economy and ICT platforms. The global distribution of K-drama has followed the trajectory of ICT's evolution to expand the audience of Hallyu content.

Furthermore, the evolution of technology has made an aesthetic impact on the cultural imagination expressed in the Korean Wave. In other words, ICT has not only been the tool of the Korean Wave's global distribution but also a new mode of media production itself. The key characteristic of the consumption and production of Hallyu works is the notion of transmedia and convergence. One of the best examples of transmedia, convergence, and spreadable potentiality is *Cheese in the Trip* (Hwang & Kim, 2018), which was produced as a webtoon, television series, and film and spread across the globe through fans' translations from Korean to various languages (Yecies, Shim, Yang, & Zhong, 2019, pp. 40–57). Other examples include K-pop reaction videos on YouTube, an example of transmedia where consumption becomes production, and K-drama recap vlog posts where fans creatively summarize content, an example of transmedia remediation of texts (Lee, 2014). Remediation is practiced in the Korean Wave through transmedia production, where one source of content is remediated into other forms and through global fans' remakes of K-content through different media.

Remediation culture is enabled by technology and has impacted the textuality and characteristics of the content. I argue that current K-content demonstrates the technological future and explains the rise of South Korean sci-fi, transmedia webtoon storytelling, and mobile games. This change requires a new framework for considering K-drama beyond the ethnic community or cultural proximity to the site of remediation. Initially, research on Hallyu content centered on the reception and popularity of K-drama in Asia, focusing on its shared cultural proximity in Asia (Ju, 2020). The popularity of K-drama was based on nostalgia, which evoked a sense of loss because of rapid modernization. Ju (2017) points out, "Previous reception studies tend to frame transnational K-drama consumption within an inter-Asian cultural context, concerned primarily with postcolonial sensibilities across modernized Asian communities" (p. 35).

However, the global circulation of K-drama through Netflix has led to more recent characteristics of the genre. New, genre-bending K-content emphasizes visual techniques within genres, such as dystopian sci-fi, and horror (zombie films and shows), that do not linger on nostalgia or proximity. Examples include *Sweet Home* (Kim, 2020), *Kingdom* (S. Lee, 2020), *#Alive* (Lee, Kim, & Kim, 2020), *Okja* (Bong et al., 2017), *Snowpiercer* (Jeong, Nam, Park, Lee, & Bong, 2013), and *Space Sweepers* (Yoon, Kim, & Jo, 2021) Hallyu content is shifting from melodrama and soap operas to works with stylistic visual effects. Taken together, the move to a digital platform and the new thematic focus on visual technology and ICT constitute a new era in K-content.

Another level of remediation is the *cultural* hybridity of Korean media, which is becoming a *technological* hybridity. Hybridity has long been a characteristic of Hallyu content, blending genres and combining Eastern and Western cultural markers into a global style. Today, Hallyu also adopts the hybridity of technologies and applies it to content. Netflix K-drama incorporates virtual technology—virtual reality (VR), AR, AI, and hologram—into narrative content. They simulate developing technologies to predict potential errors and the social issues they cause. This reflects the Silicon Valley ideology of "fail fast/fail often," which refers to constant technological experimentation (Spry & Dwyer, 2017, p. 4559). K-drama simulates technological experimentation for two primary reasons. First, Korea is an early adopter of technology, and people there rapidly incorporate new technology into their everyday lives. A technologically advanced culture serving as the background of narratives on new technology is appropriate in terms of the plausibility and quality of production. The second reason is that Korea serves as a test market for new technology, where tech companies gauge new products' marketability in Asia. Tech companies typically launch services first in South Korea before bringing them to other parts of Asia, aiming for the "Halo Effect" (Oh & Ramaprasad, 2003), which refers to tech companies' assumption that if consumers respond well in South Korea, other nations in Asia and beyond will adopt the technology. The appearance of new virtual technology in Netflix K-drama marks the reflexivity of the global tech industry and the perception of South Korea as a test market. Hallyu content stakes out the new aesthetics of remediating virtual technology as K-drama content.

Virtual Technology as Content in Netflix K-Drama

From 2018 to 2020, while Netflix was investing heavily in expanding its influence in Korea, the platform aired three K-dramas that focused on narratives about emerging virtual technology. Netflix was particularly interested in K-drama content featuring new ICT as it embarked on new projects at each new stage, entering and expanding the Korean over-the-top (OTT) market, producing the first K-drama Netflix Original, and setting a long-term contract with Studio Dragon, Korea's largest scripted television production studio. K-dramas featuring virtual technology functioned as steppingstone projects in the shifting terms between Studio Dragon and Netflix. It is notable that from 2018 to 2020, Studio Dragon made the curatorial decision to launch each new phase of its Netflix partnership with one of these three shows, all of which showcased virtual technology in their narratives.

In 2018, Netflix struck a deal to provide its services on Ustudio+tv, LG U+'s IPTV set-top, making Netflix available in South Korea via mobile app. That same year, Netflix released *Memories of the Alhambra* (Choi & Kim, 2018–2019), the first K-drama about an AR game, with the mobile game industry as its subject.

Memories of the Alhambra was produced by Studio Dragon, aired on the South Korean cable channel tvN, and was simultaneously released on Netflix. This was before "Netflix Originals"—content streaming exclusively on Netflix—came to the South Korean market. The following year, 2019, Studio Dragon produced *Love Alarm* (Kim & Vincent, 2019–2021), the first K-drama under the Netflix Originals banner, which depicts a social media-dependent society impacted by a location-based mobile dating app. In 2020, Netflix established a three-year contract with Studio Dragon to produce Netflix Originals and released its first project under this contract that same year, *My Holo Love* (H. Lee, 2020), the first K-drama to feature an AI hologram as a character.

These K-drama projects focused on virtual technology were not necessarily well received in Korea, but their production and distribution were possible because of changes in global technological environments and media platforms. As a digital platform, Netflix has abandoned the notion of conventional television, which appeals to the broad public because of a country's common taste and culture. Free of television's dependence on advertisements, which demands that networks aggregate as many viewers as possible, a subscription-based digital platform can create content with a greater diversity of subject matter. Furthermore, multinational SVOD services like Netflix, increasingly dependent on a global audience, allow for content that appeals to tastes and sensibilities that could be "too small to effectively form a viable market for services limited by national reach" (Lotz, 2020, p. 1).

K-drama narratives focused on virtual technology engender an aesthetics of remediation that considers ICT a narrative device beyond a simple representation of technology. Netflix K-dramas focused on virtual technology question television as a "signifier of national identity" (Boddy, 2002, p. 242). Rather than representing national culture or the real world, K-drama simulates technology that could be developed soon. The concern is less about national receptivity than future time. ICT has impacted not only new patterns of media consumption but also media content. Netflix, a global Internet-based SVOD platform, amplifies the transnational quality of its K-dramas by remediating media technology into the content of the television narrative.

Remediation of Virtual Technology as Televisuality in K-Drama

American television scholar John Caldwell coined the term "televisuality" to refer to the 1980s television aesthetics of stylistic exhibitionism, with an emphasis on video effects, electronic cinematography, and "the cult of technical superiority" (Caldwell, 1993, pp. 77, 92, 100). Structurally, televisuality also describes the inversion "between narrative and discourse, form and content, subject and style" (Caldwell, 1995, p. 6). It cuts across generic categories of high and low culture, or cinema and video (Caldwell, 1995, p. 5). Born out of the crisis created by changing economic realities in the television industry during the 1980s, televisuality was an industrial programming phenomenon that enabled television to navigate cultural, industrial, and technological changes at the time (Caldwell, 1995, p. 9). Similarly, integrating virtual technology into content is K-drama's new televisuality, which navigates and reflects the digital platform era where ICT is inevitably part of the narrative.

Using AR technology as a narrative element is central to K-drama's televisuality, as exemplified in Netflix's *Memories of the Alhambra* (Choi & Kim, 2018–2019), and *My Holo Love* (H. Lee, 2020). AR is a

technology that integrates computer-generated information, such as audio, video, holographic images, and haptic sensory content, into the physical environment, creating the perception that virtual objects are part of the user's surroundings. Unlike VR, where the user is perceptually immersed in a virtual world, AR integrates the virtual and the physical in real time. Mobile augmented reality (MAR) is in development, and its many trials and failures include examples from Google Glasses, MadGaze glasses, and holographic displays (Microsoft HoloLens), demonstrating a wide range of screen sizes and processing power (Braud, Bijarbooneh, Chatzopoulos, & Hui, 2017). Media companies and telecommunications services have been developing and distributing AR technology, especially AR smart glasses (ARSGs) (Rauschnabel, 2018, p. 2). Global media researchers expect that, within three to five years, VR and AR technology will be in common use (E. Lee, 2020, pp. 14–17). The technological status of the VR spectrum is that many attempts and failures are being made, while investments and experimentations are growing.

Memories of the Alhambra (Choi & Kim, 2018–2019) and *My Holo Love* (H. Lee, 2020) both capture this Hype Cycle in the narrative. However, these shows are set in scenes portraying a near future in which virtual technology is mature enough for public use, simulating what life would be with that technology. They reflect the existing technology's status, yet imagine advanced versions. Both shows begin with the technologies having some potential (Phase 1, Innovation Trigger), then move through the testing of prototypes (Phase 3, Trough of Disillusionment and Phase 4, Slope of Enlightenment), and finally show the technologies becoming widely accessible to the public (Phase 5, Plateau of Productivity).

In both dramas, early prototypes of the technologies fail because of social side effects, system errors, and bugs, which are a source of drama in the shows' plots. After technological issues are resolved and new policies establish parameters for safe use, public use resumes with updated versions of the technology. These K-dramas add another phase to the Hype Cycle, where an advanced version of the technology insinuates the possibility of new social issues and consequences, and the Hype Cycle continues as technology evolves. In these six phases of the narrative arc, on the one hand, the dramas simulate people's attitudes toward and adaptation to new technologies; on the other hand, they illuminate how virtual technology is remediated as televisuality.

The narrativization of new media technology in Netflix K-dramas is constructed by the aesthetics of remediation. Bolter and Grusin define remediation as an essential characteristic of new media, in which "[o]ne medium is itself incorporated or represented in another medium" (Bolter & Grusin, 1999, p. 45) by "translating, refashioning, and reforming other media" (Manovich, 2001, p. 89). Bolter and Grusin (1999) point out that there are two competing tendencies in remediation: immediacy and hypermediacy. Immediacy is the perception that the presence of the mediator or medium is erased so that its users experience an immediate relationship with the content without acknowledging the process of mediation (pp. 22, 25).

Meanwhile, hypermediacy is "the heterogeneous 'windowed style' of World Wide Web pages, the desktop interface, multimedia programs, and video games" (Bolter & Grusin, 1999, p. 31). Combining television with computer technology, interactive applications, or any combination of raw ingredients of "images, sound, text, animation, and video" creates a hypermediacy that highlights random access, multiplicity, and fragmentation (Bolter & Grusin, 1999, p. 31). The concepts of transparent immediacy that hide the medium itself and hypermediacy that highlight media content are not completely new. In painting,

the Renaissance and Baroque traditions are these two poles. In film theory, the two schemas have been discussed in terms of realism and formalism. What is new is the importance of interfaces in contemporary media enhanced by ICT.

In the new media environment, Manovich (2001) points out that "the old dichotomies *content-form* and *content-medium* can be rewritten as *content-interface*" (p. 66). For example, data seen as a 2D graph can be seen as 3D through 3D glasses. The 360-degree image laid on a 2D graph can now be seen as VR through a VR device. It is critical for content to be seen through the proper interface. It is 5G technology that has made MAR devices possible by providing sufficient bandwidth (amount of data transferred) and latency (speed of data transfer). Netflix K-drama content is not viewed through a 5G AR device for AR content. Rather, it remediates the AR experience on a television screen by oscillating between immediacy and hypermediacy, making the interface itself a media content and platform narrative.

Memories of the Alhambra (2018–2019): Remediation of an AR Game

Memories of the Alhambra (Choi & Kim, 2018–2019) is a genre-spanning K-drama combining romance, fantasy, action, and thriller. It was written by Song Jae-jung, who combined realism and webtoons in her previous series *W* (Son, 2016), and directed by Ahn Gil-ho, who previously directed the mystery series *Strangers* (Lee, Min, Go, & Lee, 2017–2020). Relying on its creators' expertise in medium reflexivity and blurring the boundaries between realism and fantasy, *Memories of the Alhambra* explores an AR game about medieval battles set between Spain and South Korea. Game company CEO Yoo Jin-woo (played by Hyun Bin) goes to Spain to establish a contract with an unknown programmer who has developed an immersive AR game. He meets the programmer's sister Hui-ju (played by Park Shin-jhye), who is the programmer's legal representative, runs a hostel in Granada, Spain, and is the inspiration for a key character in the game. A real-life romance between Jin-woo and Hui-ju and their entanglement in the game world unfolds mysteriously.

AR is often featured in Hollywood films, including multi-interface AR technology in *Minority Report* (Molen, Curtis, Parkes, Bont, & Spielberg, 2002), AR filming techniques in *Avatar* (Cameron, Landau, & Cameron, 2009), 3D holograms of an AR helmet in *Iron Man* (Arad, Feige, & Favreau, 2008), and holographic AR and VR illusions viewed through glasses in *Spider Man: Far from Home* (Feige, Pascal, & Watts, 2019) ("Top 10," 2020, para. 13). Yet *Memories of the Alhambra* (Cho & Kim, 2018–20) is the first K-drama to incorporate an AR game into the narrative. *Memories of the Alhambra* realistically depicts a world where AR technology has been widely adopted and the social issues that technology has caused. Series director Ahn said at a press conference that he focused on the AR game's impact on the relationships between characters instead of the heavy use of CGI, which is often emphasized in the science fiction genre (Jin, 2018).

Memories of the Alhambra imagines an advanced version of AR technology, where the AR game is incorporated into contact lenses. The game resembles a more innovative version of the 2016 game *Pokémon Go* (Niantic, Inc., 2016). *Pokémon Go* uses MAR, and users view virtual objects through their mobile screen while their camera-captured physical location becomes the game background. The game's physical location is a two-dimensional landscape on screen, while the Pokémon character is "a three-dimensional player avatar" navigating space (Grandinetti & Ecenbarger, 2018, pp. 443–444). The contact lens-based

technology imagined in *Memories of the Alhambra* generates a more immersive, hands-free game experience and includes a full range of holographic virtual objects, which *Pokémon Go* does not have.

The digital poster for *Memories of the Alhambra* quotes Arthur C. Clarke from his 1962 book *Profiles of the Future: An Inquiry into the Limits of the Possible*: "Any sufficiently advanced technology is indistinguishable from magic." The series remediates the AR game into the television narrative by using the enigmatic perception of the new technology at an early stage, as users decipher the rules of the game. The drama translates the notion of augmentation in which the elements from the different worlds cohabit by layering the virtual onto the real by remediation. Literally seeing incompatible worlds combined is the foundation of fantasy in the drama. Similarly, the thematic undercurrent of mystery comes from the coexistence of magic and science, analog and digital, medieval Spain and modern Seoul, Islamic and Catholic, and the virtual and the real.

The televisuality of *Memories of the Alhambra* remediates the game platform as part of the content of the drama through the visual techniques of immediacy and hypermediacy. Remediating the game platform into television creates three different planes: (1) the television world as primary diegesis (manifested as immediacy); (2) the game world as hypermediacy; and (3) the real world of television viewers (where the viewers are consumers of commercial products that the shows promote). The television world and the game world oscillate between the aesthetics of immediacy and hypermediacy, which are the driving forces of the drama. Subsequently, the remediated worlds interact with television viewers.

Figure 1. Memories of the Alhambra (Song & Ahn, 2018, 40:01).

Figure 2. Memories of the Alhambra (Song & Ahn, 2018, 53:30).

The show embodies hypermediacy when the protagonist wears the AR contact lenses and plays the game; the game interface occupies the frame and shows the game world from his standpoint (Figure 1). He

sees his opponents through this, which overlaid physical location (the television world). The game interface gives television viewers the sense that they are players in the game. Showing the video game interface, the television screen becomes multimedia with text, images, and live action. The game platform temporarily takes over televisuality, as if a live streaming game show.

However, the transparent immediacy and realism of the television world are recovered when the overlayed game interface becomes invisible, and the realism of the television world returns (Figure 2). In realistic shots, people gaze at his odd actions as he appears to swing his arms in the air for no reason. In this way, the remediation of the game into the narrative oscillates between hypermediacy and immediacy. Viewers do not lose their ability to identify the video game as virtual and the diegetic world of television as "real." However, the degree of distinction between the virtual and the real gradually becomes ambiguous as the plot proceeds.

The drama introduces the vocabulary of AR games and remediates them as characters and plot elements: "user" (game player), "NPC" (virtual characters who give items or tasks to the user), "quest" (mission given to the user at a specific level of the game), "HP" (the life energy of the game character), "PK" (player killing), "PVP" (player versus player), and "bug" (system error). Each role in the game world that the protagonist develops has a parallel character in real life. For example, Jin-woo, the protagonist of the drama, performs as a user of the game that he is developing. He is given a quest to kill an NPC in the game, who is also a business competitor in reality. Elsewhere, melodramatically, an NPC female character is modeled after Jin-woo's actual girlfriend in real life. The game characters and the drama characters are meticulously analogous.

A critical "bug" in the AR game is the major plot event of the drama. When a user's avatar dies during a battle in the game world, the user feels pain and dies in real life. After the actual death of this user, the avatar continually appears in the game world as a cyberghost existing virtually in the game world. Because the game is so visceral and immersive, the damage that the users experience in the virtual world impacts users' real-life physical and mental condition. This is possible, in part, because users must physically move to play, swing their arms, and fight the battle in the AR game. Because of ongoing AR immersion, Jin-woo develops what others perceive as symptoms of psychosis: he sees his AR opponents even without logging into the game or wearing AR lenses and has to suffer through battle constantly. Jin-woo's perception of the world eventually blends the real and the virtual. The classical guitar song "Recuerdos de la Alhambra," which is the show's title in Spanish, plays during the game. He hears the song in his mind, which is a cue that he is involuntarily entering the game without having logged on. It cautions that intense dependence on the virtual world could cause a side effect of automatic existence in the virtual world, negating the real world.

New media scholar Lev Manovich (2001) predicted that virtual technology would eventually be implanted in the human retina, connecting people wirelessly to a network so that people would "always be in touch" and "plugged-in" through the increasing mobility and miniaturization of devices (p. 114). This prediction is realized in *Memories of the Alhambra* through the AR contact lens. The drama imagines that this miniaturized technology creates the problem of being always and easily logged into the game, confusing users' sensory perceptions of reality and the game world. These are the potential symptoms of the moment

"the retina and the screen will merge" (Manovich, 2001, p. 114). Following the notion that VR and the physical world are mixed, the drama comes to a fantastical conclusion. After Jin-woo's death in the game, instead of becoming a cyberghost, he is revived and hidden in a virtual dungeon, where he is invisible in the game *and* in reality. In this space, it is unclear whether he is a user or an NPC, and the mystery is left to the viewer.

The drama plays the boundary between the virtual (the game world) and the real (the television world) as two contesting diezeses. On another level, the drama's televisuality engages with nondiegetic reality in commercial forms. In the drama, the users of the AR game go to a real-life Subway sandwich franchise to acquire the virtual items and weapons needed in the game. In another task, users must acquire the Korean hydration drink "Toreta!" at actual convenience stores to increase their energy levels. Game users consume real commodities from these brands in the drama, seemingly as a mediation between the game world and the characters' world, owing to the AR's connection between the virtual and the real. However, these products also engage with the television viewer's nondiegetic reality. These scenes are product placement (PPL), advertising for products by placing brand names and corporate logos into a show and having characters use these products as narrative content. (PPL became a source of revenue for K-dramas after the Korea Communications Commission eased PPL regulations in 2010. It is also a favored way of promoting South Koran products through global exposure to Hallyu content.) The game requires users to visit specific places to attain PPL game items. Consequently, this commercial televisuality, driven by virtual technology, synthesizes three planes—the game world, the drama world, and the real world. Because the show's PPL strategy incorporates these layers, the television, the game, and the industry converge on perceptual and material levels.

My Holo Love (2020): Convergence of AR, AI, and Hologram

My Holo Love (H. Lee, 2020) is another K-drama featuring AR technology. It is also a mix of genres, including science fiction, romance, and spy fiction. As in *Memories of the Alhambra* (Choi & Kim, 2018–2019), the protagonist, Nando, is a developer and CEO at an ICT company. Nando develops wearable glasses that display a customized character called Holo. Holo is a holographic AI that has access to big data, including any information available on the web or through government surveillance. This is the first K-drama to introduce a hologram character. Actor Yoon Hyun-min plays Nando and Holo in double roles. Interestingly, Nando, the human, is characterized as a cool-headed person who believes all feelings are the outcome of an algorithm; Holo, the AI hologram, has a high emotional intelligence and a more humane disposition and is warm-hearted, altruistic, and empathic. In a way, Holo is an unconscious reflection of the developer Nando, and the two selves split between the real and the virtual to compete with one another. They often play chess—a contest between the human and the algorithm. Furthermore, both fall in love with the same person, So-yeon, Holo's first user. The show's Korean title is "나 홀로 그대," which translates to "I, Holo, and You." A conventional love triangle plotline plays out between the user of the device, its developer, and the AI itself. Holo humanizes Nando at the end and disappears of his own will, wishing Nando and So-yeon happiness.

AR glasses products have been developed, including Google Glass and Microsoft HoloLens, and Samsung is currently developing its own light and fashionable wearable technology called Samsung Glasses

Lite. In *My Holo Love*, the developer designs a prototype called HoloGlass, which looks similar to the prototypes of Samsung Glasses Light in terms of casual wearability. In the show, HoloGlass has additional features combining AR, a hologram, and an AI personality. The user can choose their hologram's race, height, shadow, clothes, and even stream of breath. Only the user can see and hear the augmented presence of Holo.

So-yeon, the first person to test the device, has prosopagnosia, also known as "face blindness." She is free of this condition when she sees the world through the HoloGlass. Holo helps her in all aspects of her life, improving her efficiency at work, easing social relations, and even providing a virtual vacation from work stress when she needs one. Anything is possible because Holo is not limited by space and time and can appear at any time through the HoloGlass. More critically, Holo has access to real-time data from the Internet and numerous other information systems from industry and government. Holo is a super intelligence that can drive the user's car, watch any closed-circuit television (CCTV) video captured in the city, appear inside CCTV images, and even shut off electricity in specific parts of the city. Holo can access information in real time, making it an omnipresent power. Holo is romanticized as a hero, problem solver, and a predictor of users' needs. For the first time, the hero of a K-drama romance is an AI.

In depicting a hologram character, *My Holo Love's* televisuality also prompts a mix of immediacy and hypermediacy. In the pilot episode, the drama establishes two ways in which the viewer sees Holo on the screen. The first is immediate, presenting Holo alongside the other characters in the frame and disavowing Holo's holographic nature. The second is hypermediated, adding visual effects that give Holo a holographic texture and using the medium to make his hologram identity clear. When So-yeon encounters Holo for the first time, the drama uses the hypermediated mode, and she pokes Holo (visualized as translucent) to see if he is real or not (Figure 3).

Figure 3. My Holo Love (Ryu, Kim, Choi, & Lee, 2020a, 25:50).

Figure 4. My Holo Love (Ryu et al., 2020a, 48:05).

Throughout the drama, this mix of immediacy and hypermediacy is played out to generate a narrative effect. For example, Holo attempts to shield So-yeon from rain, which is a romantic gesture precisely because it is useless: Holo cannot block the rain because he is just a hologram appearing through So-yeon's AR glasses (Figure 4). The romantic effect is achieved on screen by switching between immediacy and hypermediacy and flickering between a live-action image and a holographic image of Holo in the rain. The oscillation between immediacy and hypermediacy makes viewers aware that the character sees Holo as a holographic image. Providing the diegetic viewpoint of the character, the flickering effect contributes to the narrative's romantic impact.

Figure 5. My Holo Love (Ryu, Kim, Choi, & Lee, 2020b, 27:51).

Figure 6. My Holo Love (Ryu et al., 2020b, 28:04).

My Holo Love also addresses capitalism as a subject, commenting on the interaction between immediacy (the television world), hypermediacy (the holographic world), and the real world (the television industry). One day after work, So-yeon drinks beer with Holo at her place. Without the hypermediacy of holographic visual effects, the scene depicts him drinking beer in her kitchen under realistic lighting (Figure 5). He drinks just to be a good company without being able to appreciate any taste. He says that the beer is only a digital image to him. So-yeon comments that this is not the way to drink a cold beer and that he could be a little more passionate about it. Suddenly, Holo transforms the scene into a commercial-like moment, with the sound effect of a person drinking, highlighted by a virtual background of the blue ocean and a halo of light (Figure 6). Holo constructs a conventional beer commercial, most likely based on the information he has collected and learned from big data. In fact, this is PPL for Hite, a real South Korean beer brand. Holo's beer is explicitly branded "HITE EXTRA COLD." Caldwell points out that through postproduction, televisuality delivers an emotive persona that "transforms hi-tech, highly capitalized environment into impulse-driven and user-friendly surrogate emoting subject" (Caldwell, 1993, p. 42). Through the emotive persona Holo, virtual technology functions as an intermediary of PPL, which shows that televisuality is a technological, cultural, and industrial site.

Figure 7. My Holo Love (Ryu, Kim, Choi, Lee, & Yoon, 2020a, 26:22).

Figure 8. My Holo Love (Ryu, Kim, Choi, Lee, & Yoon, 2020b, 8:39).

Holo, the holographic AI, is a new platform different from a movie screen, television, or computer. He is an artificially intelligent persona, ultimately existing as digital data but appearing as a *presence* to the user. He is *not* an image because the screen disappears in VR. The exact experience is only tangible through the HoloGlass device so that the televisual mode can only *translate* the experience. Making a hologram of a character is a novel technique in television drama, and there are no rules or conventions on how to represent the VR character. Televisuality adopts the new medium by remediating the old one, the screen.

Because of a systemic error, Holo becomes momentarily dormant, meaning that he exists as data but stops appearing as a customized hologram persona to the user. Unable to appear through HoloGlass, Holo is metaphorically trapped inside the database (Figure 7). The drama presents him as trapped in space behind a screen. The screen divides the developer Nando from his counterpart Holo (Figure 8). From Holo's perspective, he is in an infinite empty space facing the screen that divides him from the developer's world. This division between the virtual (Holo's world) and the real (Nando's world) is imagined in cinematic ways, yet envisions a new mode of screen.

During his dormancy, Holo meets his mother, who died when he was a child, and who was the original programmer of the HoloGlass system. (She planted herself in the virtual world as a data ghost.) Meanwhile, So-yeon meets a younger version of Nando—a data ghost awaiting his mother—looking through HoloGlass into the physical world. Reconciliation occurs simultaneously in the virtual and the physical. Two moments converge when Holo observes So-yeon's point of view (what she sees through HoloGlass) and attempts to touch on his own past: himself as a child. The scene bears a remarkable resemblance to the scene in Ingmar Bergman's *Persona* (1966), a famous text in cinema history and film psychoanalysis in which the screen is seen as a "mirror" where (mis)recognition occurs. Yet, Holo presents the psychoanalytic schema, through metamedia, as a subconscious space behind the screen on the television screen. The multilayered spatial imagination rewrites self-identification as data restoration and

trauma as memory loss in cloud storage, calling for new frames of analysis that differ from the existing psychoanalytic theory of the screen.

Francesco Casetti (2013) points out the changing culture of the current screen as a transit of information, defining the screen as "a continuous flow of data" (p. 28) and "a recombination of information packets" (p. 33). He writes, "It no longer represents the site of an epiphany of the real; rather, it is a surface across which travel the images that circulate through social space. The information that surrounds us condenses on the screen, lingers for a moment, interacts with the surrounding environment and then takes off for other points in a kind of continuous movement" (Casetti, 2013, p. 23). He also noted the pervasive mode of remediation—"the films themselves are in transit, ready to transfer onto television or computer screens, to become video games and to create a social imaginary" (Casetti, 2013, p. 36). Holo's holographic AI reiterates the new definition of the screen in the post-cinematic era. Holo is literally the flow of data and information that appears through the HoloGlass. The presence of Holo is no longer analogous to the screen as a mirror, but rather as cloud storage and virtual information that can be remediated and visualized transiently.

Beyond the notion of the screen, Holo raises a new question about the boundary between human and machine intelligence and the agency of the AI surveillance persona. Holo has a difficult time learning the Korean word "그냥," translated into English as "just 'cause," which is an ambiguous signifier in vernacular Korean that depends on a nuanced context. However, as he learns and collects more data, he approaches technological singularity, the point where his capacity is unmeasurable: he is not only equipped with human capacities like altruism and empathy but also the infinite intelligence of machine intelligence. To protect Nando from an industry spy, Holo hacks into government and business surveillance systems—a digital crime. While the public discusses whether crimes committed by an AI can be categorized as such, Holo says:

> The world will soon know a nationwide hack of the information infrastructure was performed by an AI. Some will fear it, while others will want the software for themselves. In any case, I should not exist. People will not believe that I'll keep acting with goodwill. I can't be sure of my own actions either . . . but I'm programmed to protect the people I care about even at the expense of my own existence. That is the principle I have chosen to follow (Ryu, Kim, Choi, Lee, & Yoon, 2020c).

In the last episode, Holo deletes himself, saying that he is following his own morality. The drama is resolved when Holo, an AI, deletes himself, but it leaves the question of whether an AI itself can be punished for a crime that would allow an AI agency.

Like *Memories of the Alhambra*, *My Holo Love* shows the development of a 2.0 version of prototype technology. Nando joins his IT company with So-yeon's hologram company Prism Optical, and they name their updated technology HelloGlass in reference to the HoloGlass prototype. HelloGlass results from a merger between IT and holographic optical technology, a new communication technology that lets people talk to each other in a holographic presence, as if they were a person in the same space. HelloGlass recreates a person's facial expressions and places them in the holographic image. This deepfake technology has emerged in real life, demonstrating that AI is capable of realistic video impersonations learned from a

person's face and expressions. The drama ends with the potentiality of an AI telecommunication platform that could soon be possible, simulating a step further in the cycle of technological development.

Conclusion

Netflix K-dramas featuring virtual technology have followed the genealogy of televisuality, bringing industrial, cultural, and technological knowledge into convergence. The televisuality of K-dramas employs hypermediacy in response to the contemporary digital media environment, where telecommunication, optical technology, software, big data, data surveillance, and AI all converge. Reflecting developments in ICT that are discernable to the viewer, K-drama presents a site for remediation and technological hybridity. Aesthetically, it is novel that K-drama attempts to project AR and VR subjects onto the flatness of televisuality by imagining the depth on the screen and expanding the notion of the screen. Televisuality has been defined as a "plasticity" and "flatness" that occurs when videographic technologies create images on a screen (Caldwell, 1993, p. 31, 34). However, new ICT such as AR, VR, and holograms provide a spatial experience rather than just presenting objects on a screen. Translating such an immersive media experience into a narrative requires the screen to be a site of remediation. Netflix K-dramas that incorporate ICT into their narratives demonstrate new visual grammars that allow the screen to mimic the experience of virtual technology. My textual analysis shows that the screen has become a site of multimedia content, as in the depiction of AR in *Memories of the Alhambra* or metamedia, as in *My Holo Love* and its depiction of VR and hologram. The undergirding mechanism of virtual technologies depends on data, algorithms, and AI, which are all transient and invisible entities. To represent the invisible in a visual medium, K-dramas' visual effects have begun to conceive of depth beyond the television screen that has traditionally depicted plastic images.

This article considers Netflix K-dramas a new form of Hallyu content that incorporates technological hybridity and ICT into its narrative. Previous studies on Hallyu have historicized the technological evolution that has enabled the global distribution of content (Jin, 2016; Lee, 2015) because the global popularity of Hallyu has followed developments in ICT. Yet K-dramas focused on virtual technology demonstrate that ICT is not only a vehicle of distribution of Hallyu but also a source of content that creates new televisuality, as novel technologies are simulated and remediated on screen. Moreover, Netflix's decision to produce K-dramas focused on ICT content in its initial foray into Hallyu content indicates that, in the platform era, K-content is a site of technology hybridity, not just representation and national or cultural identity. An interdisciplinary lens grounded in new media theory reveals that Hallyu is meaningful not just for its cultural hybridity and global presence, which have been the subject of cultural studies, but also as a ground for theorizing new televisuality that incorporates technological convergence.

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