

Mediations of Care: Brokering Labour in the Age of Robotics

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ABSTRACT

Developments in the field of social robotics have increasingly played with the boundaries between human and machine, using remote or tele-presence technological innovations as a way to mediate or revolutionize human-machine interactions. This paper explores one such development, namely the roboticization of care labour in the realm of education, and the ways in which it brokers relationships between human and non-human interaction. Drawing on fieldwork in the Philippines and South Korea and using the telepresence robotic innovation of Engkey as a case study, this paper describes practices that represent the convergence of technology, politics, and intimacies that shape the complexities of contemporary forms of labour migration, articulations of gendered and racialized “skill,” and changing relationships between human and non-human. The paper argues that these relationships are intentionally produced *mediations of care*: gendered and racialized hierarchies that produce new forms of affective labour and sociality that are governed by modes of simultaneous disembodiment and embodiment, immobility and mobility, and marketized statecraft through vocabularies of innovation and exploitation. These technologically produced mediations of care have implications for how we understand the connections between human and machine and how labour and sociality are ultimately brokered in the context of a neoliberal and capitalist world order.

Keywords: care work, human-robot interaction (HRI), techno-orientalism, robotics, telepresence, affective labour, English-language learning, migration, infrastructure

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Introduction

Two years ago, following the publication of Martin Ford's *The Rise of the Robots: Technology and the Threat of a Jobless Future*,¹ alarming headlines proliferated across news media circuits with chilling projections of the susceptibility of human labour to automation. Indeed, according to the International Labour Organization (ILO), a number of jobs across different sectors, including manufacturing, textile, and electronics, in five ASEAN countries already reveal the significant use of robotics—and automation—to displace human labour.² Similarly, in 2018, the International Federation of Robotics revealed the steady increase in the use of robots in manufacturing industries, with China, South Korea, and Singapore in the lead.³ In addition to manufacturing and electronic industries, developments in social robots, which are specifically configured for human interactions, continue to grow, whether in the context of facilitating telepresence technology or specifically providing task-oriented technical assistance.⁴ What these robotic innovations reveal is not necessarily the replacement of labour, but the ways in which labour is being reconfigured to accommodate working with robots. "Learning to Love Our Robot Co-Workers," as a recent *New York Times Magazine* article reads, offers a provocative suggestion: "The most important frontier for robots is not the work they take from humans but the work they do *with* humans—which requires learning on both sides."⁵

This paper is situated within this altered landscape, recognizing the growing prominence of robots and the implications of this development for labour. By examining one particular telepresence robot—Engkey—this paper explores the ways in which technology acts as a broker that mediates the organization of labour; the mobility/immobility of migrants; the relationship between the global north and south; and the racialized and gendered processes that continue to inform these mediations. In so doing, robotic innovation can help illuminate the newly configured relationships between human and non-human actors, and help unpack the "black box of migration,"⁶ a term which refers to the gaps in our knowledge about labour-brokering

¹ Martin Ford, *Rise of the Robots: Technology and the Threat of a Jobless Future* (New York: Basic Books, 2016).

² Jae Hee Chang, Gary Rynhart, and Phu Huynh, "ASEAN in Transformation: How Technology is Changing Jobs and Enterprises," Bureau of Employer's Activities (ACT/EMP) Working Paper #10 (Geneva: International Labour Office, 2016).

³ International Federation of Robotics, "Robot Density Rises Globally," *IFR Press Release*, 7 February 2018.

⁴ Heather Knight, "How Humans Respond to Robots: Building Public Policy through Good Design," *Brookings: The Robots are Coming: The Project on Civilian Robotics* (Center for Technology Innovation at Brookings, July 2014).

⁵ Kim Tingley, "Learning to Love our Robot-Coworkers," *The New York Times Magazine* (23 February 2017). Emphasis added.

⁶ Johan Lindquist, Biao Xiang, and Brenda Yeoh, "Opening the Black Box of Migration: Brokers, the organization of transnational mobility, and the changing political economy of Asia," *Pacific Affairs* 85, no. 1 (2012): 7.

processes and the infrastructure of migration that impacts labour relations. I argue that these technologically brokered relationships reflect intentionally produced mediations of care; they showcase gendered and racialized hierarchies that produce new forms of affective labour and sociality; and are governed by modes of simultaneous disembodiment and embodiment, immobility and mobility. They also reveal a marketized state that profits from these mediations through vocabularies of innovation and exploitation.

Methodology

This paper is based on fieldwork that took place during multiple visits to South Korea and the Philippines between 2014 and 2016. In South Korea, these visits included a dozen repeated interviews and informal conversations with roboticists from the Korea Institute of Science and Technology (KIST), the Korea Advanced Institute of Science and Technology (KAIST), and Robotis, as well as government officials from the Korea Foundation for the Advancement of Science and Creativity (KOFAC) and the Korea Evaluation Institute of Industrial Technology (KEIT), which are both involved in funding and developing the country's robotic projects. In order to understand the commercialization of English-language learning, I also conducted participant observations at one of the English-language villages in Seoul and interviewed administrators and teachers at this facility. I observed classroom sessions and reviewed and analyzed curriculum materials. In the Philippines, I conducted multiple interviews with the four primary "robot teachers" who were specifically trained to operate Engkey and provide English-language instruction to elementary-school children in Daegu, South Korea. I also conducted content and discourse analyses of various media and technical reports as well as videos documenting the various robotic developments in South Korea and the English as a foreign language (EFL) industry in the Philippines.

The "Black Box": Labour Brokering, Revisited

In conceptualizing the mediations of care that Engkey's innovation facilitates, I situate my analysis within the context of labour brokering or the brokerage apparatus, which has been central in migration studies, especially in the context of theorizing the conditions and structures that facilitate mobilities and immobilities of migrants in Asia.⁷ For the Philippines, this notion has

⁷ See, for example, Frank Eelens and J.D. Speckmann, "Recruitment of Labor Migrants for the Middle East: The Sri Lankan Case," *International Migration Review* 24, no. 2 (1990): 297–322; Johan Lindquist, "Anthropology of Brokers and Brokerage," in *International Encyclopedia of Social and Behavioural Science*, 2nd edition (Amsterdam: Elsevier, 2015); Alice Kern and Ulrike Muller-Boker, "The middle space of migration: A case study of brokerage and recruitment agencies in Nepal," *Geoforum* 65 (2015): 158–169; Sverre Molland, "Safe Migration, Dilettante Brokers, and the Appropriation of Legality: Lao-Thai 'Trafficking' in the Context of Regulating Labour Migration," *Pacific Affairs* 85, no. 1 (2012): 117–136; Daromir Rudnycky, "Technologies of Servitude: Governmentality and Indonesian

been key to a growing body of literature illuminating Philippine statecraft in structuring and controlling the migration process and the governmentality of workers.⁸ My work also emphasizes such Philippine statecraft, and specifically a marketized form of statecraft. In addition, I also show the ways in which this statecraft operates in conjunction with other institutional actors (for example, private recruitment agencies) and non-institutional actors (for example, migrant workers) to dictate and structure the brokering process, highlighting the geopolitics of care work and the continued persistence of race and gender in structuring these dynamics.⁹

In so doing, I engage with the call to open up and illuminate the “black box” of migration and shed light on mechanisms that govern the lives and fates of those who work under these conditions.¹⁰ Unpacking the black box or “migration infrastructures” as conceptualized by Xiang and Lindquist¹¹ as the “systematically interlinked technologies, institutions, and actors that facilitate and condition mobility” is a useful analytic that allows for the grounding or territorialization of capital. As a growing body of literature on Asian migrations has shown, this infrastructure fuels both the formal and informal brokerage systems at work, whether it is in the form of “sponsors” or the “gendered regimes of debt” that Lindquist¹² has brilliantly captured in the case of the migration of domestic workers from Indonesia; the informal agents who play a pivotal role in the recruitment of Sri Lankan domestic workers in the Middle East, as Eelens and Speckman¹³ have enumerated; or the bodyshops that operate to recruit IT workers in Xiang’s¹⁴ seminal work. More recently, there are also educational institutions that broker Filipina nurses’ employability overseas that are captured in Yasmin Ortega’s¹⁵ work; the *khafala* system which structures the mobility and legal, financial, and social standing/responsibility of workers in the Middle East, as Deshingkar

Transnational Labor Migration,” *Anthropology Quarterly* 77 (2004): 407–434; Biao Xiang, *Global Body Shopping: An Indian Labor System in the Information Technology Industry* (Princeton: Princeton University Press, 2008).

⁸ See, for example, Rick Baldoz, *The Third Asiatic Invasion: Empire and Migration in Filipino America 1898-1946* (New York: New York University Press, 2011); Catherine Ceniza Choy, *Empire of Care: Nursing and Migration in Filipino American History* (Durham: Duke University Press, 2003); Rhacel Salazar Parreñas, *Servants of Globalization: Women, Migration, and Domestic Work* (Stanford: Stanford University Press, 2001); Robyn Magalit Rodriguez, *Migrants for Export: How the Philippine State Brokers Labor to the World* (Minneapolis: University of Minnesota Press, 2010).

⁹ Anna Romina Guevarra, *Marketing Dreams, Manufacturing Heroes: The Transnational Labor Brokering of Filipino Workers* (New Brunswick: Rutgers University Press, 2010).

¹⁰ Lindquist et al., “Opening the Black Box of Migration.”

¹¹ Biao Xiang and Johan Lindquist, “Migration Infrastructure,” *International Migration Review* 48, no. S1 (2014): S124.

¹² Johan Lindquist, “Labour Recruitment, Circuits of Capital and Gendered Mobility: Reconceptualizing the Indonesian Migration Industry,” *Pacific Affairs* 83, no. 1 (2010): 115–132.

¹³ Eelens and Speckmann, “Recruitment of Labor Migrants for the Middle East: The Sri Lankan Case.”

¹⁴ Xiang, *Global Body Shopping*.

¹⁵ Yasmin Ortega, “Professional Problems: The burden of producing the ‘global’ Filipino nurse,” *Social Science and Medicine* 115 (2014): 64–71.

and Zeitlyn¹⁶ have examined; or the so-called “dilettante brokers” in Molland’s¹⁷ work, who perform a kind of ad-hoc brokering within existing social networks. They all exemplify Xiang’s important reminder that “migration is not just about how migrants move ... but *how they are moved*, with great precision.”¹⁸

Labour brokering, thus, is fundamentally about a form of discipline, an infrastructure that sustains neoliberal and racialized states. As such, labour brokerage is also about a process that enacts a gendered and racialized moral economy of the migrant that links family, religion, and nationalism with neoliberal capitalist ideals of economic competitiveness. In the context of my work, I have problematized notions of migrant empowerment, as they are frequently produced through this brokering process, often in collusion with ideas of neoliberal freedom and individual responsibility. I have enumerated the complex, problematic, and often contradictory ways in which the discursive strategies that aim to elevate the competitive advantage of Filipinos and racially brand them as “ideal” workers, or state strategies that attempt to minimize their vulnerability, only seem to generate unintended consequences of creating exploitative working conditions.¹⁹

In the case of the Philippines, the purported “Home of the Great Filipino Worker,” as the nationalist tagline indicates, Filipinos have come to be represented as more than just workers. They are purposefully marketed through the moniker of the *bagong bayani*—the modern-day heroes who fuel the Philippine economy with their remittances. Sometimes, they are celebrated as the *dakilang manggagawa*, extraordinary/brave workers who are recognized by the Philippine state with a presidential award of honour for their work overseas, or as the self-sacrificing nurses/mothers who carry the economic weight and the burden of the nation on their backs, and the ever-iconic “*supermaids*” with the “value-added” training (they can cook and clean for you as well as save you from a burning building!). Underlying the representations are culturally essentialist notions of docility, revolving around the perceived “Filipino essence” that makes them ideal workers: a racialized and gendered form of labour power that works in the service of commodifying Filipino labour.²⁰

¹⁶ Priya Deshingkar and Benjamin Zeitlyn, “South-South Migration for Domestic Work and Poverty,” *Geography Compass* 9, no. 4 (2015): 169–179.

¹⁷ Molland, “Safe Migration,” 117–136.

¹⁸ Biao Xiang, “Labor Transplant: ‘Point-to-Point’ Transnational Labor Migration in East Asia,” *The South Atlantic Quarterly* 111, no. 4 (2012): 723.

¹⁹ See for example Anna Romina Guevarra, “Managing ‘Vulnerabilities’ and ‘Empowering’ Migrant Filipina Workers: The Philippines’ Overseas Employment Program,” *Social Identities* 12, no. 5 (2006): 523–541.

²⁰ See for example, Anna Romina Guevarra, “Supermaids: The Racial Branding of Global Filipino Care Labour,” in *Migration and Care Labour: Theory, Policy, and Politics*, eds. Bridget Anderson and Isabel Shutes (London and New York: Palgrave Macmillan, 2014), 130.

Thus configured, the brokering process—this “infrastructure of mobility,” as Lindquist, Xiang, and Yeoh note—can also become a window through which to see the transformations in the globalization and organization of labour.²¹ As these scholars posit, the “broker is not a fixed entity,” and as we are seeing in the literature and in this special issue, brokers can take a number of forms, from educational institutions and recruitment agencies, to training centres and churches.

In this paper, I add technology to this cast of institutions or characters as yet another broker that mediates how we understand and reconceptualize the organization and performance of labour, especially in the context of neoliberal, racialized, and gendered capital formations. In particular, I highlight the world of social robotics to explore the ways in which robots are brokering the labour process in today’s global order and making visible a specific kind of mobility infrastructure. In so doing, I also situate my analysis within Larkin’s proposition to analyze infrastructures not only in terms of their technical dimensions but also their semiotic and aesthetic values.²² An analysis of robotics cannot only be about its innovation and how it can technologically augment and support the delivery of care labour, but also how it can play a role in informing the meaning of care work and reconfiguring social relations. I argue that this happens through intentionally produced *mediations of care*: practices that represent the convergence of technology, capital, politics, and intimacies in the crucial (and growing) interface between human and non-human in today’s world.²³

Mediating the “Social” through Telepresence Robotics

Engkey’s innovation is situated in developments surrounding telepresence robotics, in which the idea of machines mediating human interactions has been a central focus. Originally coined by Marvin Minsky in 1980, “telepresence” proposed the idea of a technology that would promote the “sense of being there,” facilitating human interactions through remote presence.²⁴ Minsky’s projection and imagination of a “remote controlled economy” is most evident in the development of videoconferencing and video chat applications and more recently, in the realm of “telepresence

²¹ Lindquist et al., “Opening the Black Box of Migration.”

²² Brian Larkin, “The Politics and Poetics of Infrastructure,” *Annual Review of Anthropology* 42 (2013): 327–343.

²³ I thank Tina Shrestha for her incisive comments and guidance in helping me further situate my argument in the context of infrastructure as a categorical analytic.

²⁴ Marvin Minsky, “Telepresence,” *OMNI* 2, no. 9 (1980): 44–52; “telepresence” is considered an outgrowth of the “teleoperation” technology that began to be a subject of research from the 1950s. See, for example, Ray Goertz and Robert Thompson, “Electronically controlled manipulator,” *Nucleonics* 12, no. 11 (1954): 46–47.

robotics.”²⁵ Telepresence robots are “mobile machines that act as people’s stand-in at a remote location. Such systems enable the remote senders of the system to be ‘embodied’ in the form of a robot at a remote location.”²⁶ The range of tele-robots that have emerged in recent years include videoconferencing systems like KUBI²⁷ and android systems like Geminoid H-1²⁸ or Telenoid.²⁹ These tele-robots are configured so as to facilitate communication and interaction between human and machine, while experimenting with notions of robot autonomy and the capacity for, and degree of, “cooperation” or “seamlessness” that can be accomplished in these interactions, a core issue within HRI (Human-Robot Interaction) research.³⁰ Specifically, with the goal of figuring out how to build synergistic human-robot “teams,” the growing body of HRI research explores questions surrounding the division of responsibilities between human and robot, what “interpersonal skills” the robot needs to perform in order to be successful, what issues of safety and ethics need to be considered, how social factors (gender, culture, and age), context (workplace, home, etc.) and stereotypes affect these interactions, and what it means to be “human,” to name a few core issues.³¹

Telepresence robotics is a subfield of HRI, making these issues central to the development of the field. The primary objective in this subfield is to create synergistic human-robot systems in the context of “delivering” the presence of the remote sender. One of the issues that has emerged pertains to questions of embodiment and finding the most effective mechanism for transmitting the presence of the remote sender in ways that minimize confusion from the perspective of the technology user. This problem results from the phenomenon of “dual ecologies,” referring to the “difference

²⁵ See, for example, Thomas B. Sheridan, *Telerobotics, Automation, and Human Supervisory Control* (Cambridge, MA: MIT Press, 1992); Terence Fong and Charles Thorpe, “Vehicle teleoperation interfaces,” *Autonomous Robots* 11, no. 1 (2001): 9–18; Eric Paulos and John Canny, “Social Tele-Embodiment: Understanding Presence,” *Autonomous Robots* 11 (2001): 87–95.

²⁶ Jung Ju Choi and Sonya S. Kwak, “Who is this? Identity and presence in robot-mediated communication,” *Cognitive Systems Research* 43 (2017): 174–189.

²⁷ See <https://www.revolverobotics.com>.

²⁸ Daisuke Sakamoto et al., “Android as a telecommunication medium with a human-like presence,” in *Proceedings of the ACM/IEEE international conference on human robot interaction (HRI’07)* (2007): 193–200.

²⁹ Rosario Sorbello et al., “An architecture for Telenoid robot as empathic conversational android companion for elderly people,” *Advances in Intelligent Systems and Computing* 302 (2016): 939–953.

³⁰ Kai Wei Ong, Gerald Seet, and Siang Kok Sim, “An Implementation of Seamless Human-Robot Interaction for Telerobotics,” *International Journal of Advanced Robotic Systems* 5, no. 2 (2008): 167–176; Jennifer L. Burke et al., “Final Report for the DARPA/NSF Interdisciplinary Study on Human-Robot Interaction,” *IEEE Transactions on Systems, Man, and Cybernetics – Part C* 34, no. 2 (2004): 103–112.

³¹ Burke et al., “Final Report for the DARPA/NSF Interdisciplinary Study on Human-Robot Interaction,” 103–112; Lucy Suchman, “Subject objects,” *Feminist Theory* 12, no. 2 (2011): 119–145; Benedict Tay, Younbo Jung, and Taezoon Park, “When stereotypes meet robots: The double-edge sword of robot gender and personality in human–robot interaction,” *Computers in Human Behavior* 38 (2014): 75–84.

between the ecologies of the remote and local sites,”³² which materializes due to the robot’s own visible physical embodiment that creates two different “realities” when juxtaposed with the disembodied presence of the remote sender/human.³³ These dual ecologies are best explained by Choi and Kwak,³⁴ who characterize the uniqueness of telepresence robots through their potentially dual configuration both as a “medium” as well as a “social being.” As a medium, a telepresence robot can act as a conduit for the remote sender so that the robot’s sole purpose is to ensure that the remote sender’s presence is conveyed and projected appropriately. Alternatively, a telepresence robot can act as a “social being/actor” that delivers a particular message and whose identity and presence increases as it communicates with the sender.

In the field of education, the use of educational service robots (of which telepresence/tele-operated robots are one type), continues to gain popularity given its potential promise in expanding access to students unable to physically attend school, or situated in rural areas experiencing a shortage of teachers, and increasingly, in the context of facilitating English-language learning.³⁵ This can be seen in the development of telepresence robots such as Robosapien, Giraffe, and VGO in the US, Roti in South Korea, and Pebbles in Canada.³⁶ In these instances, the technology of robot-assisted language learning (RALL) has been employed as a means to connect a remote teacher to a particular learner via the robot as a medium, allowing the remote teacher to communicate with the learners as well as display various instructional material. While RALL has shown some positive outcomes in terms of language learning acquisition and motivation, there are also some challenges. One that is of particular concern to this paper is the relationship between the robot and the teacher and the degree of “cooperation” between the two. Interestingly, in discussions of the “teacher” in these situations, the remote teacher is not actively included, with the focus instead on the technology/robot as the “source” of knowledge. This raises questions about what this non-inclusion or erasure signifies in terms of labour (i.e., who is doing the

³² Choi and Kwak, “Who is this?” 175.

³³ Thomas B. Sheridan, “Musings on telepresence and virtual presence,” *Presence: Teleoperators and Virtual Environments* 1, no. 1 (1992): 120–125; Jonathan Steuer, “Defining virtual reality: Dimensions determining telepresence,” *Journal of Communication* 42, no. 4 (1992): 73–93; Kaiko Kuwamura et al., “Personality distortion in communication through teleoperated robots,” in *Proceedings of the 21st IEEE international symposium on robot and human interactive communication (RO-MAN’12)* (2012): 49–54; Min Kyung Lee and Leila Takayama, “Now, I have a body: Uses and social norms for mobile remote presence in the workplace,” in *Proceedings of the CHI 2011 conference on human factors in computing systems (CHI’11)* (2011): 33–42; David Sirkin and Wendy Ju, “Consistency in physical and on-screen action improves perceptions of telepresence robots,” in *Proceedings of the ACM/IEEE international conference on human-robot interaction (HRI’12)* (2012): 57–64; Paulos and Canny, “Social Tele-Embodiment.”

³⁴ Choi and Kwak, “Who is this?”

³⁵ Fumihide Tanaka et al., “Telepresence robot helps children in communicating with teachers who speak a different language,” *Proceedings of the 2014 ACM/IEEE international conference on Human-robot interaction (ACM, 2014)*: 399–406; Jeonghye Han, “Emerging Technologies: Robot Assisted Language Learning,” *Language, Learning, & Technology* 16, no. 3 (2012): 1–9.

³⁶ Han, “Emerging Technologies.”

work of teaching) as well as sociality (i.e., what kinds of relationships are forged in this process).

In this paper, I explore these questions, with an eye towards understanding how our conceptualization of care and care labour may change with the mediation of robotic technology, using a specific telepresence robotic innovation, Engkey, as a case study. In 2010, the Korean Institute of Science and Technology (KIST) captured the attention of the robotics world with the introduction of Engkey—the English teaching robot—designed to provide English-language educational assistance in South Korean elementary schools. As an avatar tele-education robot, Engkey is premised on the concept of “distance teaching,” and represents the South Korean state’s commitment to improving the English-language proficiency of its citizens. At a height of just over three feet, Engkey presents as a white penguin-shaped robot, with a TV display screen as a head that projects an image of a young white girl with long blonde hair. It can wheel around the room to speak, sing, sense, and actively respond to children, as well as provide an emotional response by modulating “her” facial expressions and moving “her” head and arms (See figure 1).

Figure 1:
Engkey



Source: Courtesy of the Korea Institute of Science and Technology

What is fascinating about Engkey is not its robotic disposition but its implications for labour, especially at a time when the presence of immigrant workers continues to generate anxieties for nation-states. South Korea is one such country that appears to have increasingly grown wary of the source of migrant labour. For example, South Korea has only granted E2 visas (designated for foreign-language instructors) to citizens of countries deemed to be “experts” in the English language: the US, the UK, Canada, Australia, New Zealand, Ireland, and South Africa.³⁷ Despite the fact that the Philippines has been a key destination for South Korean English-language learners from at least the late 1990s,³⁸ this restriction on immigration continues to be the state policy. As I will discuss later, part of the impetus and support for developing Engkey was to provide a mechanism to curtail the presence of “foreign” workers.

Robot Teachers and the Labour of Engkey

In many ways, telepresence robots like Engkey resemble the fantastical representation of the “cybracero” in filmmaker Alex Rivera’s imagination.³⁹ *Cybraceros*⁴⁰ is a futuristic and fantastical mockumentary about the Bracero Program, a labour recruitment initiative for male labourers from Mexico that was implemented in the 1940s to respond to the shortage of agricultural workers in the US. The mockumentary depicts a kind of dystopia, where Mexican labourers no longer have to physically leave for the US and instead telecommute from home, using the Internet. These so-called cybraceros present themselves as ideal “immigrants”: Mexican workers who no longer have to leave Mexico, therefore accommodating the US xenophobic landscape, as well as serving the interests of capital by lowering the cost of labour. As the mock promo film proudly declares, “Only the *labour* of Mexicans will cross the border ... It’s all the labour without the worker.”

Much like the cybraceros, Engkey’s “functionality” derives from the fact that “she” is controlled by a remote teacher, who, during the pilot tests, was located in the Philippines. In this situation, Filipina teachers, working as online instructors in call centres in the Philippines, circulate as disembodied, yet gendered and racialized robots with white avatar faces, and interact with South Korean students using a microphone device attached to a video camera to telecast lessons and communicate in real time. The teacher directs and manipulates the robot’s movements to correspond with her instruction and

³⁷ Hae Yeon Choo, *Decentering Citizenship: Gender, Labor, and Migrant Rights in South Korea* (Stanford: Stanford University Press, 2016).

³⁸ Virginia Miralao, “Understanding the Korean Diaspora in the Philippines,” in *Exploring Transnational Communities in the Philippines*, eds. V.A. Miralao and L.P. Makil (Philippine Migration Research Network [PMRN] and Philippine Social Science Council [PSSC]: UNESCO, 2007), 24–39.

³⁹ Alex Rivera, “Why Cybraceros? Mockumentary,” 1997, <https://vimeo.com/46513267>.

⁴⁰ “Cybraceros” translates to virtual labourers.

the desired quality of interaction with the students. However, the students who receive her instruction are not able to see the teacher in the Philippines, or distinguish between the “actual” teacher and the machine that is projecting the teacher’s intellect. For these students, Engkey, the robot, is their teacher: one with a white face, blond hair ... and a Filipina-tinged “American” accent.

Engkey’s ability to be a teacher is made possible by a thriving EFL (English as a foreign language) industry in the Philippines that employs and trains hundreds of English-language online instructors, some of whom have worked as the voice and intellect behind Engkey. One such instructor is “Ms. Boo.”⁴¹ Born in Manila, Philippines in 1984, she has spent almost a decade of her young career sitting in front of a computer, with headphones on her ears, engaging elementary school students in South Korea as they learn conversational English. She welcomes the opportunity to travel abroad and see the places that her students share with her, but she has no aspirations to leave the country permanently. She informed me that she is quite content with her life in the Philippines. She graduated with a degree in mass communication but what she truly wanted to do was to become a radio DJ. She started as an EFL instructor and was later promoted to a training manager, and now helps other young women and new college graduates develop an “American” accent and master grammar, which are the key requirements for the job.

“Regal,”⁴² the company that employs Ms. Boo, was founded in 2003, and prides itself on recruiting teachers who already demonstrate fluency in English and who are college educated (with a degree in hand or about to graduate upon application). It advertises widely in newspapers and social media, but also relies heavily on word of mouth from current employees. Applicants undergo an intensive selection process, which begins with a phone consultation to test their communication skills, a fifty-item grammar diagnostic test, an in-person interview to check the applicant’s personal and employment history, alongside a very detailed pronunciation and intonation check, a screening interview with a top-level Korean administrator, and a one-month training period that involves lectures, exams, role-playing activities, and mock calls/interactions. As Regal’s promotional materials boast, they train their teachers to perceive Korean students as follows: “Korean students are known for being very competitive in studies and at work. One of their goals is to be fluent in English, aside from other languages that they study. The role of EFL teachers is to help them achieve this goal.” To meet this goal, teachers in this company undergo routine testing, evaluation, and training. A typical motto of their training department is “we

⁴¹ Ms. Boo, interview by the author, Manila, 3 March 2016; this name is a pseudonym and was selected by this participant.

⁴² This is a pseudonym that I selected.

make our training so hard that it is impossible for the classes to be harder than our training.”

While Ms. Boo herself is quite proud of the quality of the service this company provides, what she is most proud of, and her subsequent claim to fame, is that she was “*the* first robot teacher in the world.” Ms. Boo was one of the first “voices” behind Engkey during the early pilot test of this robot. As a robot teacher, she understood her labour to be about projecting English-language instruction through a machine whose mobility she directed and manipulated, to correspond with her desired movements and expressions. For Ms. Boo, Engkey’s job was merely to deliver a set of repetitive prompts and exercises to a small group of students at a time, providing instructions that facilitated the learning of English. In turn, the students in South Korea who were receiving her instruction were not able to distinguish between the actual teacher and the machine. There was no Ms. Boo; Engkey was their teacher. “Success,” in this context, was measured by the degree to which students were able to erase Ms. Boo and learn from (and potentially identify with) the blond, blue-eyed robot, Engkey.

As Ms. Boo noted, this job required a type of coordination that was not always successful, and at times, proved challenging. She recounted, with good humour, that working with Engkey was “three times the challenge and three times the fun”:

In an ordinary phone or video class, you only have to think about your teaching performance. You only have to control yourself. But with the robot, you also have to control Engkey. We have the remote control. [We] are connected via teleconference. We are the operators of Engkey. We wear red and blue gloves [that have] sensors. When we raise our hands up and down, Engkey’s hands also move. The avatar detects our facial expression; when we smile, she smiles. When we talk, her lips move.⁴³

But Engkey’s success in the classroom depends on its ability to encourage students to view the robot as the teacher, as a play thing that teaches them English as well as brings them comfort and makes them feel at ease. During one of the field tests, a child commented that “Engkey is fun. But she is not human. Repeating the same dialogue is what she does. I wish she would become more expressive and responsive like a human teacher.”⁴⁴

In this interaction, Engkey is a robotic technology emblematic of a technocultural landscape, a space wherein these innovations can be cultivated. Here, I draw from Anne Balsamo’s call to envision “innovation” not simply as “things” but as “assemblages of practices, materialities, and affordances” that are produced through the praxis of technological imagination, “a

⁴³ Ms. Boo, interview, 3 March 2016.

⁴⁴ Anna Romina Guevarra, “Techno-Modeling Care: Racial Branding, Disembodied Labor, and ‘Cybraceros’ in South Korea,” *Frontiers: A Journal of Women’s Studies* 36, no. 3 (2015): 139–159.

mindset that enables people to think with technology, to transform what is known to what is possible.”⁴⁵ In this context, Engkey’s innovation is not solely about its technical configurations that make teaching from a remote distance possible, but it is also about the kind of infrastructure it sets up. As Larkin points out, infrastructures “are objects that create the grounds on which other objects operate, and when they do so they operate as systems.”⁴⁶ As I discuss below, Engkey represents a kind of infrastructure that is built upon racialized and gendered perceptions of care, the “ideal” careworker, the possibilities of migration, and the neoliberal economic developmental principles that underlie these patterns—all of which allow for a kind of marketized statecraft that materializes the capacity to rule people by “enchanted”⁴⁷ them with the promise of technological innovation. This promise revolves around the growing interest in simulating humanity in ways that can simultaneously respond to global demands for reproductive/care labour as well as satisfy a xenophobic and neoliberal political economic landscape.

Care Labour and the Technopolitics of Enchantment

Using Engkey as an example of a technocultural innovation that intervenes in the geopolitics of care work and social reproduction in a neoliberal landscape in this way, I engage with Rhacel Parreñas’ notion of the global care chains, which she characterizes as a kind of global transfer of care-taking that renders the global north dependent on the global south for care labour.⁴⁸ It is a process that reifies the current division of reproductive labour, reflecting and perpetuating a class-based hierarchy between the providers and consumers of care. In this care chain, those with the most economic resources are able to purchase the low-wage labour of a woman with lesser economic resources. This woman, as a consequence of leaving her family behind in order to provide this labour, may then also end up having to purchase the low-wage labour of another, “poorer” woman in her home country.

Unlike the human subjects in Parreñas’ global care chains, we are dealing with mediated human labour: a gendered and racialized fantasy come to life that mediates how we come to understand the boundaries between human and machine, as well as complicate our understandings of what it means to provide care labour. In this sense, a mediated form of human labour

⁴⁵ Anne Balsamo, *Technologies of the Gendered Body: Reading Cyborg Women* (Durham and London: Duke University Press, 1996).

⁴⁶ Larkin, “The Politics and Poetics of Infrastructure,” 329.

⁴⁷ Penny Harvey and Hannah Knox, “The Enchantments of Infrastructure,” *Mobilities* 7, no. 4 (2012): 521–536.

⁴⁸ Rhacel Parreñas, *Servants of Globalization: Women, Migration, and Domestic Work* (Stanford: Stanford University Press, 2001).

represents a unique kind of infrastructure that allows for the generation of care labor that is technopolitical, but also sensorial. To this end, it is instructive to relate this phenomenon to the ways that Larkin conceptualizes the dynamism of infrastructure by using roads and railways as examples.⁴⁹ According to Larkin, roads and railways are not only “technical objects,” but they “also operate on the level of fantasy and desire. They encode the dreams of individuals and societies and are the vehicles whereby those fantasies are transmitted and made emotionally real.”⁵⁰ Following this configuration, we can view Engkey as reflecting a fantasy capitalizing on the “ideal” qualified and “cheapened” care worker who is rendered operable by a female technocultural figure whose real “third-world” labour is made invisible or occluded by an acceptable and “legitimate” representation of this labour. In other words, the gendering of the reproductive labour provided by Engkey first occurs via the “third-world” online worker who is able to provide the actual teaching of English without the necessity of movement/migration, thereby evading the public scrutiny of contributing to the so-called care crisis in the Philippines. But her gendered identity is legitimated only if her “third-world” subjectivity is erased, or whitened. Engkey’s innovation, then, placed in the context of the division of global care work, extends, but at the same time disrupts, the logic of commoditized labour.

For one, it creates another professionalized class of workers deemed to be the ideal labouring bodies—highly technical, educated, and English-language proficient—who possess a particular kind of social and cultural capital that allows them to land such a job. Second, the transfer and transport of their care work become internalized and mechanized through this whitened robotic figure that signals the ideal persona for teaching English. And as “ideal subjects,” Regal is in the business of making sure that each of their EFL teachers “acquires an American accent” as they perfect their pronunciation and intonation of English words. Thus, the robotic presence that emerges from Engkey is a byproduct of a simultaneous erasure of the human teacher’s physical presence, her speech, and to some extent, her personality. For Ms. Boo, she understands her role to be in sync with a robot whose white avatar face she is supposed to represent and project. And for the roboticists who created Engkey, they justified the white avatar by simply telling me that “the white face is the authority for English language and therefore, it is what is needed for this system to work and be acceptable to the users of this technology.”⁵¹ In addition, “using an avatar instead of the real person’s face is less confusing for children.” That is, roboticists do not want to raise questions among children about the nature of the human operating the robot and her potentially fraught location. They only want the

⁴⁹ Larkin, “The Politics and Poetics of Infrastructure.”

⁵⁰ Larkin, “The Politics and Poetics of Infrastructure,” 333.

⁵¹ Fieldwork, Seoul, 9 November 2015.

children to interact with the machine as a whitened figure/object with an “American” accent. Interestingly, robot teachers like Ms. Boo also internalize the necessity of Engkey’s white face, if only to summon a kind of global authority and legitimacy in a landscape where English is a global lingua franca, and where the obsession with whiteness fuels state incentives to create globally competitive and cosmopolitan subjects—as in the case of South Korea.⁵² Places like the Philippines, on the other hand, with a historical and political economic infrastructure that is rooted in its colonial relations with the United States, create the conditions for the use of such technology, especially in the context of a labour-exporting state that has engaged in racially branding the added value of its labour force.

If we think of care-work technology like Engkey as a broker that mediates sociality and the boundaries between human and machine, we can also view it as a kind of “enchanted infrastructure” in the same way that Harvey and Knox⁵³ proposed. As such, the power and social currency of such a technology lies in its capacity to allure and “enchant” the public with a range of possibilities. For one, this type of technology can offer a new strategy for responding to the global need for care labour, but pitched through innovation and simulation that attempts to break the boundaries between human and machine. Secondly, for countries like the Philippines, which have been a source of global care-work labour, this is a kind of technology that enables a new kind of marketized statecraft that is poised to profit from this innovation by engaging in a new economic development strategy of importing jobs to the Philippines. And at the same time, it permits a new mode of state governance that is premised on a kind of “virtual” mobility. This mobility, for a labour-exporting state like the Philippines that has been criticized for the country’s “care crisis” due to the outmigration of its careworkers, allows for their continued participation in the global labour market by ensuring that the physical labouring bodies stay at home. Additionally, it creates a desire for whiteness and an aspirational horizon of the US as the arbiter of knowledge/power.

Drawing from Harvey and Knox’s analysis of the capacity of infrastructures to “enchant,” Engkey’s power lies in its ability to tap into not only fantasies and desires related to modernity and cosmopolitanism, but also fears and anxieties about immigration and employment, both of which do not always become visible in discourses of “innovation” but perhaps comprise the “unruly process” from which infrastructures emerge.⁵⁴ For example, the labouring Filipina body is completely subsumed and made invisible in the circulation of Engkey’s robotic figure. But it is also this process of erasure

⁵² See Nadia Kim, *Imperial Citizens: Koreans and Race from Seoul to LA* (Stanford: Stanford University Press, 2008); Sharon Heijin Lee, *The (Geo)Politics of Beauty: Race, Transnationalism, and Neoliberalism in South Korean Beauty Culture* (PhD dissertation, University of Michigan, 2012).

⁵³ Harvey and Knox, “The Enchantments of Infrastructure.”

⁵⁴ Harvey and Knox, “The Enchantments of Infrastructure,” 525.

that complicates the racial branding process insofar as Filipinos' comparative advantage is represented and camouflaged in whiteness. In this case, the Filipina labouring body becomes good enough to embody the white face that Engkey represents. Thus, the mediated human labour that is projected through this robotic technology is not only about the visible "innovation" of what it means to do remote tele-education. But it is also about what is invisible and what affective relationships are set up to make this particular infrastructure possible—an issue which I turn to next.

The Affective Labour of Mediating Care

In one of our conversations, I asked Ms. Boo what it meant to be a "robot teacher." She described a feeling of disconnectedness and said, "Engkey is a robot that has a human face and the body of a machine ... I felt like I was more like Engkey. I know that it was not my face they were seeing. It was an avatar. They only heard my voice."⁵⁵ For Ms. Boo, she needed to perform a specific kind of labour, one that was premised on erasing her identity as a Filipina woman and instead focused on producing herself as a robot, while at the same time speaking with an American (not British or Australian) accent to correspond to the white "American" face. In this mediated incarnation, she was a disembodied tele-presence who was, in a fundamental way, asked to *imagine herself as the robot* represented by this white avatar. The very medium of Engkey requires a particular performance of affective labour—one that necessitates a simultaneous embodiment and disembodiment of the human teacher in this process. Here, I draw on Michael Hardt's⁵⁶ formulation of the affective labour of human contact and interaction, wherein the "affective" reflects immaterial, intangible labour: the "feeling of ease, well-being, satisfaction, excitement, passion—even a sense of connectedness or community."⁵⁷ Therefore, as Hardt⁵⁸ explains, affective labour is the work entailed in the "creation and manipulation of affects," those experiences that make up the "affective dimension" that Massumi refers to as the "unstructured, precognitive, and embodied intensities underlying emotional experience itself."⁵⁹ The notion of affective labour's use-value is not necessarily new, as Hardt clarifies, given that feminist scholars, in particular, have long articulated the ways in which caring labour, kin work, and maternal activities, for example, despite being societally devalued as "unproductive labour," actually do in fact have use-value as forms of labour that contribute to social reproduction. What is new, according to Hardt, is the extent to which affective (or immaterial) labour has become of central interest to

⁵⁵ Ms. Boo, interview, 3 March 2016.

⁵⁶ Michael Hardt, "Affective Labor," *Boundary* 26, no. 2 (1999): 96.

⁵⁷ Michael Hardt, "Affective Labor," 96.

⁵⁸ Michael Hardt, "Affective Labor," 96.

⁵⁹ Brian Massumi, *Parables for the Virtual* (Durham: Duke University Press, 2002), xx.

capital and in particular, how it serves as “one of the strongest links in the chain of capitalist post-modernization.”⁶⁰

In the context of social robotics, the affective dynamics embedded in human-robot interaction and the ethics behind this relationship have also become central foci of research—what Raya Jones characterizes as a “relational turn,” specifically informed by social cognitive psychological factors.⁶¹ For the roboticists who created Engkey, the simultaneous disembodiment and embodiment that occurs in the performance of care labour is seen as a way of creating a seamless integration between the human and machine:

A key element that the tele-operated system should provide [is] a natural unity between a native teacher and robot, so that students can concentrate and be fully immersed in the learning process. We are attempting to achieve this unity by developing an easy and real-time control of the robot’s various activities and expressions by a native teacher as if the robot were the teacher’s avatar. To guarantee such a unity, significant integration of various robotic technologies is essential.⁶²

But, this integration is also inherently about the use-value of Engkey’s affective labour, which works for capital in at least two ways. The roboticists who created Engkey pitched this technology as a possible cost-effective alternative to importing foreign teachers. As one of the scientists at the KIST stated, “[the Engkey robots] won’t complain about health insurance, sick leave and their severance package, or leave in three months for a better-paying job in Japan ... all you need is a repair and upgrade every once in a while.”⁶³ While the same scientists do not want to claim that such innovations will replace human labour, they have routinely expressed the robot’s efficiency and cost-effectiveness. They also believe that Engkey’s added value and capacity to do this work of education and care labour is heightened by a lack of “predisposition for moral problems” such as those posed by potential migrants, an invaluable asset when interacting with children. As one scientist noted, “the immigration system in Korea is not good enough to examine whether the foreign visitors are clean or not, or [if] they [committed a crime].”⁶⁴ This xenophobic phenomenon can also be seen in Japan with

⁶⁰ Michael Hardt, “Affective Labor,” 90.

⁶¹ Raya Jones, “Relationalism through Social Robotics,” *Journal for the Theory of Social Behaviour* 43, no. 4 (2012): 405–424.

⁶² Sangseok Yun et al., “Engkey: Tele-Education Robot,” in *ICSR’11 Proceedings of the Third International Conference on Social Robotics*, eds. Bilge Mutlu et al. (Berlin: Springer-Verlag Berlin, Heidelberg, 2011), 143.

⁶³ “South Korea School Robots Operated by Pinoy Teachers,” *Philippine Daily Inquirer*, 29 December 2011.

⁶⁴ Jeffrey Young, “Robot Teachers Are the Latest E-Learning Tool,” *The Chronicle of Higher Education*, 31 October 2010, <https://www.chronicle.com/article/Robot-Teachers-Are-the-Latest/125102>.

regards to the preference for robots over migrant workers as caregivers.⁶⁵ This preference stems from anxieties about cultural differences as well as the desire to maintain ethnic homogeneity.

Similarly, in South Korea, despite the resulting mechanization and disconnectedness that can come about from these interactions, the use of robots is becoming a viable alternative to human labour. Robot teachers like Ms. Boo understand that the affective ties that can be cultivated in this interface are limited: “We have less connection with students. Sometimes we have to speak more loudly. But with Engkey, you only use your voice and you have to do everything to get their attention.”⁶⁶ As a result, the affective labour that is then transmitted becomes codified and mechanized in ways that are not only scripted but also regulated, to produce a mediated interaction that is bound within the confines of this virtual medium. The mediated care labour that gets performed is not only about a simultaneous disembodiment/embodiment, but is also about a simultaneous mobility of the robot and Ms. Boo’s immobility as a teacher situated thousands of miles away, whose movements are dictated not only by the creators/state’s xenophobia but also by the limits of Engkey’s operation manual.

On the flipside, for a labour-exporting country like the Philippines, Engkey represents a means of keeping the labourer physically in the country, making it possible for the Philippine state to address the country’s anxieties about the current care crisis. In this narrative, the state can claim to provide a solution to this deficit emerging from transnational families and the consequential escalation of familial issues such as marriage dissolution, “broken homes,” and juvenile delinquency, all of which have been attributed to the migration of women and mothers. Now, the workers (em)powering Engkey can seamlessly perform affective labour both abroad and at home. As Larkin notes, “infrastructures are the means by which a state proffers these representations to its citizens and asks them to take those representations as social facts.”⁶⁷

However, what also needs to be taken into account is the inability of the state or roboticists to calculate with precision how people engage with or interpret these technologies. In this case, the robot teachers themselves attempt to negotiate the level of artificiality in their relationship to robotic technology. This happened to another robot teacher, who called herself AJ:

I was apprehensive. I was skeptical of the robot. I did not understand why it was necessary. Why couldn’t we just do a video class so they can

⁶⁵ Jennifer Robertson, *Robo Sapiens Japonicus: Robots, Gender, Family, and the Japanese Nation*, (Oakland: University of California Press, 2018); Jennifer Robertson, “Robo sapiens japonicus: Humanoid robots and the posthuman family,” *Critical Asian Studies* 39, no. 3 (2007): 369–398; Selma Šabanović, “Inventing Japan’s ‘robotics culture’: The repeated assembly of science, technology, and culture in social robotics,” *Social Studies of Science* 44, no. 3 (2014): 342–367.

⁶⁶ Ms. Boo, interview by the author, 3 March 2016.

⁶⁷ Larkin, “The Politics and Poetics of Infrastructure,” 335.

see me? I was going to put on make-up anyway for the kids. Why do we need a robot? I was skeptical at first ... You can make it dance. There were buttons you can control. It was hard. You're not only navigating the lessons but you are navigating the robot. It was hard. What do I do first? Do I flip the page on the lesson plan or make Engkey move? We have the remote control, which has the ability to control her expressions and movements—move her to the left or right or make her appear with a sad or happy face.⁶⁸

And sometimes, this mediation breaks down, making it impossible for the teacher to connect with the students. As AJ noted:

Sometimes there are situations where the kids will come over and touch her but then Engkey will stop because of her sensors—her sensors are configured so that she cannot be touched. Sometimes we cannot control her—she'll shut down; there's low battery. The kids get sad They don't know about me. They just know that there is a robot they can talk to. We say that our name is Engkey. We don't say that we are in the Philippines.⁶⁹

Engkey's success in the classroom depends on the fact that “she” is perceived to be a plaything and less threatening than an actual human teacher. The kind of labour performed by these robot teachers and the consciousness they inhabit must balance a fine line between being human-like yet still appearing to be a thing, an entertaining gadget. Thus, if “virtual migration creates a disjuncture between an agent's experience and consciousness—between embodied inhabitation and everyday performances of identity,”⁷⁰ then the disjuncture for the worker behind Engkey materializes as a consequence not only of timespace compression but also of this technological mediation.

Conclusion

As roboticists continue to experiment with developing fully autonomous robots—with the kind of artificial intelligence that will eventually be able to understand the state of mind and intentions of the user—the telepresence capabilities of Engkey can provide crucial stepping stones toward this pursuit, mediating and interrupting the labour of care. In this paper, I have tried to unpack one aspect of the “black box” of migration by introducing technology as a broker, envisioning it in broad terms, as an infrastructure which is mediating how care labour is being designed, organized, and delivered.

⁶⁸ AJ, interview by the author, Manila, 14 March 2016; “AJ” is a pseudonym selected by this participant.

⁶⁹ AJ, interview by the author, 14 March 2016.

⁷⁰ Aimee Carrillo Rowe, Sheena Malhotra, and Kimberlee Perez, *Answer the Call: Virtual Migration in Indian Call Centers* (Minneapolis and London: University of Minnesota Press, 2013).

Using Engkey as an example, I emphasize the importance of seeing robotic technology not only in terms of its technical dimensions but also for how it represents a kind of infrastructure that is mediating sociality through intentional productions and *mediations of care*. These mediations of care—gendered and racialized hierarchies that produce new forms of affective labour and sociality—are governed by modes of simultaneous disembodiment and embodiment, immobility and mobility, and marketized states that operate through vocabularies of innovation and exploitation within this neoliberal landscape.

While the future of robotics is uncertain and unpredictable, robots like Engkey are useful prisms through which to view the ways in which technological investments increasingly work to seamlessly mediate, or suture, the human and machine, and revolutionize sociality. Engkey is but one example of this ongoing effort, providing the grounds for analyzing the convergence of technology, politics, and intimacies in the crucial interface between human and non-human. As robots are increasingly a part of our everyday reality, the current political and theoretical project for addressing the presence of this technology in our everyday lives calls for an intelligent and sustainable engagement with the ways in which these technologies are brokering human relationships in the world. What I have tried to outline in this paper is one such engagement, so we can broaden our scope of understanding, and expand our field of vision, as we try to unearth what continues to be invisible, precarious, uncertain, dynamic, and often, contradictory in today's technologized—and brokered—world.

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