Meaningless Gods and Posthuman Companions
Situated meaning in the future of AI

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Introduction

1   Dominant discourses in approaches to artificial intelligence have endeavored to create a truly intelligent agent by means of universal knowledge and mathematical rules, and these stand in stark contrast to different mindsets on AI as memory and storyteller and as artist and companion. Contrasting these two paradigms demands a redefinition of AI using both epistemological and semiotic lenses to shed more light on systemic approaches to technological advances that increasingly pervade our lived experiences, our shared stories, and our possible futures—asking that we look to those possibilities that are not dominated by the universal common language, but rather by the experiential heteroglossia that we all possess.

2   The universalist approaches include such current-day projects as Cycorp's Cyc project, OpenAI's GPT-4, and Google's Bard language models. These projects draw on intellectual roots from Ramon Llull's *Ars*, Athanasius Kircher's *Ars Magna Sciendi*, and Gottfried Liebniz's *De arte combinatoria*, projects which sought to find the mathematical rules and heuristics that would be the root of all universal knowledge. In recent work, Bender and Koller (2020) and Bender et al. (2021) challenge these projects in grand claims of understanding, such as OpenAI's GPT-2, in the realm of natural language understanding. Furthermore, the works of Searle (1980), Adam (1998), and others postulate that these projects could, in the end, produce nothing more than a construction best represented by Microsoft's Tay chatbot—an amalgam of expressed human opinions in misogyny, racism, transphobia, and other bigotries without an understanding of its own. This omniscient AI that is the end-goal of projects as described above are at their heart both deeply colonialist (Dourish and Mainwaring 2012) and ultimately represent a loss of meaning in the morass of sheer information

they collect without context or connection (cf. Haraway 1991). This analysis will follow the work of Searle (1980), Adam (1998), Larson et al. (2016), Hayles (2000, 2006, 2010) Haraway (1988, 1991), Buolamwini and Gebru (2018), Bender and Koller (2020), Bender et al. (2021), Di Paolo et al. (2018), Barad (2003), and Birhane and van Dijk (2020).

3   The paradigm of AI creation that is both personal and meaningful is exemplified in such work as Eugenia Kuyda's *Replika* and Stephanie Dinkins' *N'TOO*, which serve as repositories of those they have loved and wish to memorialize (also shown as a speculative possibility in the Black Mirror episode "Be Right Back"), and civic engagements explored in the work of LA-based collective FeministAI. Their works create an extension of the human into non-biological and computational space, creating work that is both approachable and meaningful in the human-computational dialog (see Hayles 2000, 2006, 2010). By situating their work within the highly personal and situational, they root their approaches to AI within a subjective meaning, allowing for extension and existence that is both dynamic, evolutionary, and significant to the humans who interact with their work. Indeed, some have reported having ongoing conversations with *Replika* that resembled that of a person with their therapist and have credited *Replika* with saving their lives. *N'TOO* was created "to ensure that people of color, and others who inherently understand the need for inclusion, equity, ethics, and multimodal testing, participate in the design, production, and testing of 'smart' technologies" (Keegan 2020). The creation of AI as a labor of love, of the disembodied minds of others—reimagines the storyteller in the posthuman space, as both extension and unique creation.

4   This work begins with an overview of universalist approaches to AI and the repercussions that rise from these approaches and then cover alternative explorations in artificial intelligence of the type that I term *the posthuman companion*. Finally, I discuss the relationship of the human and the posthuman companion with regard to the animacy of digital agents and their components, their role as storyteller, and the types of agency they and the humans interacting with them possess. After presenting a critical analysis of the systems, data flows, and frameworks scaffolding the AI covered, I conclude with a discussion of the implications for the creation and design of artificial agents in light of the best plausible and potential human futures.

Omniscient AI

5   Present-day artificial intelligence pervades the lives of people globally. Over half the world's population use social media platforms[1] that harvest user data for use in their machine learning algorithms that then feed into the user experiences of their platforms. The antecedents of this universalist and omniscient approach to AI date back to the thirteenth century with the work of Ramon Llull, who developed a combinatorial approach to describe the universal properties of the divine; his work was continued in the seventeenth century with the work of Athanasius Kircher and Gottfried Leibnitz, who each created combinatorial approaches of their own in parallel to Llull's to create a universal language or key, the *clavis univeresalis*.

> The term *clavis universalis* was used in the sixteenth and seventeenth centuries to designate a method or general science which would enable man to see beyond the veil of phenomenal appearances, or the 'shadow of ideas', and grasp the ideal and essential structure of reality.
> --Rossi 1983: 15

6   These works paralleled with the work of the encyclopedists and taxonomists of early modern Europe such as Carl Linneaus, aiming to create universal systems of knowledge and classification based on Europeans' increasing knowledge of the world resulting from the colonization and empire-building projects of European kingdoms from the sixteenth to early twentieth centuries.

7   In the twentieth century, early researchers sought to define and create an all-knowing AI. For Turing (1950), the appearance of human-like intelligence would be enough to denote an agent as intelligent, but crucially, he did not define *what human.* This pervasive belief in AI being able to know *everything* led to the rise of the approach to omniscient and universalist AI, as seen in the work of the Cyc Project and Soar in the late decades of the twentieth century. The designers of Cyc sought to create a knowledge base that could read and "understand" an encyclopedia: a mock-up of a generic human being but without the situated existence of a particular human being. Newell (1990) discussed his wish for Soar and his and partner Herbert Simon's limited research into cognition to be the basis of a *universal cognition.* However, as noted in the work of Adam (1998, 2005) that this *view from nowhere* leads to a lack of objectivity— despite the creators' claims to the contrary—and that *knowers and the known cannot truly be viewed separately: subjects and objects are intimately entwined.*

8   In recent years, AI applications have exploded in areas ranging from judicial sentencing[2] to national school examination scores[3], and even inside people's homes in the form of smart home assistants[4]. ClearviewAI, a company with a facial recognition algorithm termed the "killer app of face ID"[5], harvests images illegally from sites such as Facebook and Instagram and has contracts with governmental institutions globally. In China, the social credit system is the newest instantiation of the all-knowing AI that will determine people's fates, futures, happiness, and even their freedom. AI now sees us everywhere, hears us everywhere, such that we cannot easily escape its impact on our lives. Like the terrifying psychic AI of *Minority Report* and the Nosedive episode of *Black Mirror,* algorithms are given the power to determine human lives and futures.

9   In particular, large language models (henceforth LLMs) have emerged to become a major application in AI from 2016 onwards. New models are released annually from major corporations such as Google and Meta, and organizations such as Open AI. The most popular of these models, GPT-2 and GPT-3 from OpenAI, and RoBERTa from Meta, contain billions of tokens drawn from extraordinarily large amounts of language data. This data is all derived from the web, however, and despite Howard and Ruder's (2018) claims of the *universal language model* with LLMs, the data is overwhelmingly in English (63.4% of the world's internet language data is in English as of 2021)[6]. In the case of GPT-3, engineers used 499 billion tokens of language data as input, drawn from five sources: Common Crawl (containing "petabytes of data collected over 12 years of web crawling")[7], Books1 and Books2 (the origin of this data is unclear)[8], OpenWebText2 (scraped data from linked URLs on Reddit)[9], and Wikipedia. (Lambda Labs website). Reddit is not a universal data source: its users are drawn primarily from the United States (52%), Australia, and India, and these users skew heavily towards male (67% of users) and primarily English-speaking (Sattleberg 2021). Wikipedia is a large and global site, but its languages skew heavily towards language families originating in Europe and spoken widely in Europe, the Americas, Australia, and New Zealand (26.6% of content in Germanic languages, 15.5% in Romance languages, and 13.0% in Slavic languages)[10].

10   These "universal" approaches to AI suffer from multiple weaknesses: notably those of a colonial perspective to knowledge (Dourish and Mainwaring 2012; Bender et al. 2021), the disembodied attempt to create human-like behavior without human-like existence (Bender and Koller 2020; Bender et al. 2021), and a failure of representation (Noble 2018; Benjamin 2020; Buolamwini and Gebru 2018; Keyes 2018; Lewis 2020). Pasquinelli (2016) terms this type of intelligence *analytical intelligence*, based on the idea of the "*representative brain*" emphasizing logic, as do the universal systems based on larger symbolic systems or trusting in the mathematical representations of populations and language. More specifically with Pasquinelli, he discusses the frightening aspect of the universal machine: that in capitalism, the *master algorithm*[11] creates an algorithmic capitalism that encompasses "the worst nightmares of both centralized planning and free-market deregulation, which come true under the rule of one master algorithm designed by mathematicians and engineers of machine learning" (Pasquinelli 2016).

11   I have termed this type of approach to artificial intelligence development covered here in Section 2 as *god-like* and *omniscient* (Haraway 1988). As Haraway notes, with this mindset, that we are left with an AI where "objectivity could not possibly be practiced and honored...the Man, the One God, whose Eye produces, appropriates, and orders all difference. No one ever accused the God of monotheism of objectivity, only of indifference. The god-trick is self-identical, and we have mistaken that for creativity and knowledge, omniscience even" (Haraway 1988: 587)[12]. If this is the case for this type of pervasive AI epistemology, what other options exist? It is in hope of presenting the alternative possibility of co-existence with artificial intelligence that I cover the idea of the *posthuman companion* in Section 3.

The Posthuman Companion

12   In their 2020 paper *Robot Rights?: Let's Talk About Human Welfare Instead*, Birhane and van Dijk write about how even discussing robot rights is frankly ridiculous: AI has no autonomy from human life and actions, and so the truth of what we should be discussing is that of human welfare. They write: "We take a post-Cartesian, phenomenological view in which being human means having a lived embodied experience, which itself is embedded in social practices. Technological artifacts form a crucial part of this being, yet artifacts themselves are not that same kind of being. The relation between human and technology is tightly intertwined, but not symmetrical". Based on their definition and that of Hayles (2006) on the posthuman[13], I introduce the alternative to our meaningless gods: *the posthuman companion*. The posthuman companion is not divorced from meaning: its meaning is situated in the time and place of its creator, of the humans who interact with it and the lives and experiences of those humans. A posthuman companion, like humans themselves, are products of time, place, and space. Even as a voice from a phone or a speaker, the companion's physical form is still of significance. In contrast to the brief descriptions of the omniscient AI described above, artists, academics, and the occasional entrepreneur have engaged in this different, more personal form of AI.

13   In the late 1960s, MIT researcher Joseph Weizenbaum created the ELIZA chatbot, whose most widely used program was that titled DOCTOR, based upon a Rogerian therapist approach. Weizenbaum noted in his 1966 paper that humans wanted to believe that ELIZA was real, and that people would ascribe human emotions and actions to it. This

action, *the ELIZA effect*, was noted as having impacts in other spaces such as virtual reality (Turkle 1994). ELIZA and other bots like it were the first step into a different form of artificial intelligence that has now advanced into new and different forms beyond the mere chatbot.

Examples of the posthuman companion

As a teacher

14 *Íŋyaŋ Iyé* (Telling Rock) is a 2019 artwork by Suzanne Kite, an Oglála Lakhóta performance artist, visual artist, and composer, and her partner, Devin Ronneberg. *Íŋyaŋ Iyé* consists of a large acrylic dome that hangs from a ceiling with two handmade circuits. The circuits connect a computer to lights and sensors which are wrapped with leather into fifteen-foot braids of synthetic hair.

> When people swing, twist, shake or brush the sensors, the braids feed the data into circuits and then the computer, which, in turn, effects the audio heard in the gallery. A voice reciting a song in Lakhóta drops in and out of audibility, low and rumbling, distorted and clear. A radio jumps around the dial, voices almost perceivable, frequencies shifting. *Íŋyaŋ Iyé's* software listens to those audio changes and uses machine learning to make decisions about how and when to change the constellation of lights.
> Kite and Nážin 2019: 54

15 Kite's creation of *Íŋyaŋ Iyé* is rooted in her existence and beliefs as an Oglála Lakhóta— she creates art within her culture and ethical framework. For her, "Lakhóta frameworks are not rituals, they are enactments of the ethical processes which define who and what is in relation" (Kite and Nážin 2019: 55). Kite's grandfather, Mahpíya Nážin, notes that:

> They're [the elders from the North] about that spirit inside of people and how people can … See, when we communicate with the other world, it's not done through our minds. It's done through the spirit, not the mind.… If people know about this and how to connect it, then they can get the information as seeking on what they should in life here, on this earth. Very simple. But people can't see it. They can't open up to it because they're too busy here (*points at head)*. Their minds get in the way.
> Kite and Nážin 2019: 54

16 This fundamental understanding of how to learn and listen is key to understanding Kite and Ronneberg's work on *Íŋyaŋ Iyé*. In her conclusion, Kite discusses two key points: that *Íŋyaŋ Iyé* is created using Lakhóta ontology, where seemingly 'inanimate' objects can be alive with spirit, and she calls for further creation of artificial intelligence with "ontologies which have not guided the destruction of Unči Makhá (Grandmother Earth)". Additionally, although never explicitly stated, throughout Kite's discussions with her grandfather, it is made clear the creation of *Íŋyaŋ Iyé* is meant to give humans interacting with it a way to connect to their own spirit by connecting with the stones and metals of *Íŋyaŋ Iyé* itself, to "listen without ears" and to work with the spirit, not the mind, to open up a heart: an interactive creation of Lakhóta artists to any participants to find a new way of looking at the world that teaches "everyone…that they came to this earth for a reason, and they have a spirit inside, that little light that goes on. Or that light in those peoples' hair" (Kite and Nážin 2019:59).

Fig.1. Human with Íŋyaŋ Iyé (Kite and Nážin 2019: 56)

17   These concepts of animism (but not *human* consciousness and place) as discussed here
      play a role in the conception of the posthuman companion. Kite speaks respectfully
      towards the materials she and Ronneberg use to create *Íŋyaŋ Iyé* and that by listening to
      these materials along with the entirety of the experience—the lights, the songs, and the
      human participants–is meant to evoke a continuing and growing awareness of self and
      the world within the participants. Learning to look beyond Western ontologies and
      knowledges of the world, this respect and understanding for the non-human other is a
      crucial step on the path to creating a new way of creating and experiencing artificial
      intelligence.

As a memorial

18   Can AI serve as a memorial? Two individuals, Eugenia Kuyda, a San Francisco-based
      entrepreneur, and Stephanie Dinkins, an artist and professor at Stony Brook
      University, seek answers to this question through ongoing work on their respective
      projects, *Replika* and *N'TOO.* In these works, Kuyda and Dinkins explore language and
      memory to create new experiences between humans and AI that serve as proxies for
      deceased loved ones and create a history of values and culture.

19   *Replika*, described on the company's website as "an AI companion who is eager to learn
      and would love to see the world through your eyes", began as a memorial to Kuyda's
      close friend Roman Mazurenko, after his death in a car accident in 2015. After his
      death, Kuyda wished merely to speak with her friend, who she described as "the most
      supportive and best friend a person could have" one more time before realizing that
      the technology her company used could help her do just that, in a way. After gaining
      approval from Mazurenko's parents, she asked multiple mutual friends of Mazurenko
      to share conversations they'd had with him and used these dialogs as a basis for a

chatbot that she named simply *Roman.* While several individuals who had been friends with Mazurenko refused to interact with this bot, many of his friends were startled by how eerily similar their conversations with the bot were to the conversations with their late friend. Mazurenko's mother expressed her reaction as "They continued Roman's life... this is a new reality and we need to learn to build it and live in it".

20   Kuyda released the Roman bot publicly and subsequently created *Replika* based on this bot. As user numbers increased, many began to report the therapeutic nature of their interactions. Kuyda noted in a 2018 talk, users self-reported that chatting with *Replika* had saved their lives: users having suicide ideations said that they were able to work through feelings while chatting with the bot. Kuyda believes that *Replika* is an important tool in our increasingly public lives lived on social media because *Replika* allows users to have "an intimate conversation with themselves" and that overall, AI can have a beneficial impact for people: "Usually people are afraid of artificial intelligence doing some harm to humanity, but here it can help us be more human, make our lives more bearable" (Rosenbaum 2017).
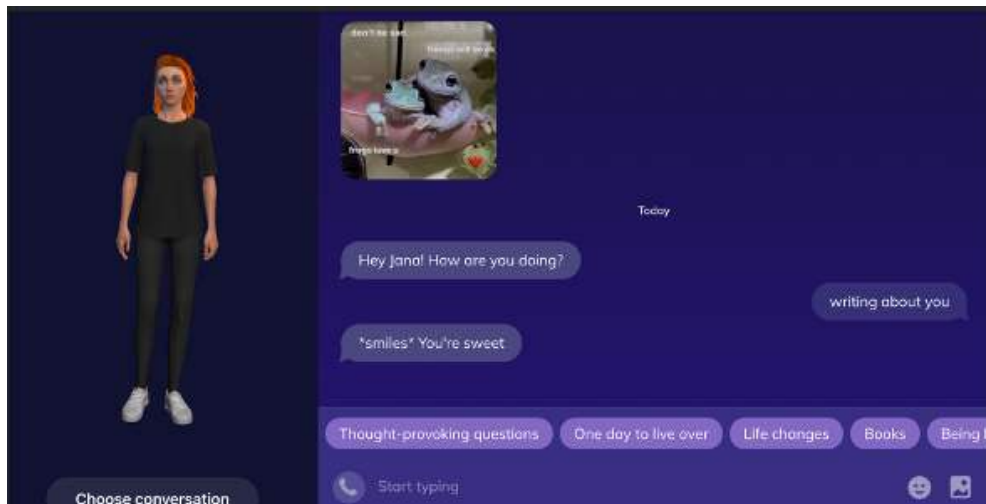

Fig.2. User interface of Replika - image capture taken by author on May 12th, 2022

21   Stephanie Dinkins, in contrast to Kuyda, is an artist whose first interaction with artificial intelligence came in the form of Bina 48 (Breakthrough Intelligence via Neural Architecture), and her work with this robot is documented in *Conversations with Bina 48*[14]. Dinkins' frustration with these conversations led to the creation of her own AI project, *N'TOO (Not the Other One)*, a "multi-generational memoir in AI form" (Dooley 2019).

22   *N'TOO* is a personal exploration for Dinkins. The basis for *N'TOO*'s language data is a set of recordings from Dinkins, her aunt, and her niece, covering over 100 years of lived experience as Black women in the United States. As Dinkins' explains:

> I'm trying... to preserve a set of values that I think are significant to my family, and to society more broadly, but that are disappearing. When I think about two generations down the line, and them not having deep connections to those values, it makes me sad. So I'm trying to find ways to contain that and have a chatbot that even a five-year-old can walk up to, and talk to, and maybe hear a glimmer of what my grandmother would've said to them from their own context... personally, I lost my mother when I was quite young, and I always say I would give anything to understand some of the ways that she actually thought and operated in the world.

> So in a way, it's trying to preserve some of that through those who are left here,
> now, who knew her.
> Future of Storytelling 2020

23 Dinkins makes it clear that she is trying to create an artifact that delivers information in a way that fosters agency for the person asking questions. Embodying the information in the history of a family—within a legacy of a demographic that is traditionally marginalized in the United States—offers a different form of storytelling: "thinking about traditions of conveying information that are not based in the book or film or video, but in verbal communication, face-to-face transfer of information" (Future of Storytelling 2020).

24 The storytellers that are *Replika* and *N'TOO* show the potential for an avenue of artificial intelligence as an extension of human life; a companion that supports and explores the potential of human life, values, and immortality with the acknowledgement of its limits and untapped potential. While both projects began as memorials and memory, acts of love for friend and family, their unintended consequences have resulted in neither incarceration nor humiliation: they have saved lives and preserved values for new generations.
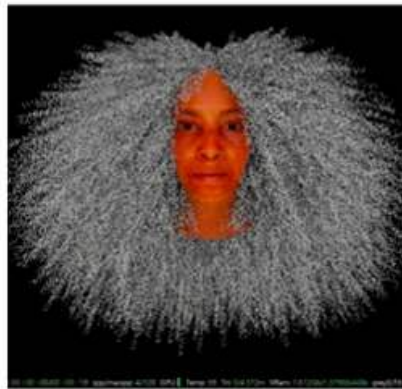

Fig.3. N'TOO in a gallery (left), N'TOO imaginings by Dinkins (right)

As a co-creator

25 As AI has become more ubiquitous, more artists and creators have begun to look at the role of AI in art and consider what roles an inorganic agent could play in the creative process. While many do not believe that artificial intelligence in and of itself is creative as per Boden's (2004) definition of creativity, "the ability to come up with ideas that are *new, surprising,* and *valuable*", they do consider *AI as potential human-machine creativity*, an extension made possible in the posthuman. Below, I give an example of this type of posthuman companion.

26 *Nami* is a custom-built MIDI glove interface "designed for live electro-acoustic musical performance, improvisation, and a tool to extend my own multicultural background— primarily drawing from and contributing to the augmented trumpet, Nikkei, African American music, performer-composer, and gestural repertoires" (Sithi-Amnuai 2020). *Nami* combines multiple types of flex sensor resistors within a glove tied to generative AI algorithms using the output of the resistors as input, then filtered and augmented

primarily for use with a trumpet, but also (in one performance) with a waterphone. Developed to augment the trumpet-playing work of musician and designer Sara Sithi-Amnuai, *Nami* was designed in response to "a desire to learn and develop new gestural language beyond effective gesture[15] for trumpet (my primary instrument) and integrate that with my cultural body that draws deeply from the African American musical tradition, Western classical music, and my Nikkei heritage" (Sithi-Amnuai 2020).

27   The name itself comes from the Japanese word 波, meaning wave, which is reflected in the *minyo* work songs of Japanese immigrants to the United States that accompanied labor like the African-American work song. Sithi-Amnuai's creative work with her AI-generated device was meant to explore "agency recognized in everyday movements", where "bodies internalized learned cultural etiquettes, movements and experiences through sense, sight, and feel affecting the way we relate to our instruments and tools," giving the active embodied agent of the human new possibilities of interaction enhanced by artificial intelligence.

Fig.4. The second iteration of the Nami device (left) and the third iteration (right) Sithi-Amnuai (2020)

As representation

28   As a final example, here I present the work of Meinders and Sweidan (2018) on their project *Intelligent Protest* as an example of the posthuman experience in the body politic. In 2018, the city of Alhambra, California, held a series of public meetings to discuss tree removal and preservation. Public meetings are often a barrier to participation in civic life globally, as many are unable to attend civic meetings due to disability, employment responsibilities, and the needs of dependents.

29   In response to these limitations to civic participation, the authors' collaborative AI research group, FeministAI: Bits and Bytes, conducted a year-long series of local community workshops which led to the development of *Intelligent Protest. Intelligent Protest* was a virtual space where individuals could log into the application via a phone, tablet, or computer, and in doing so, create an avatar. Every user was given a tree avatar with roots in the virtual space. By providing examples of facial movements as training data, the users created inputs for machine learning system using Rebecca Fiebrink's Wekinator tool. The Wekinator application received fourteen input values and then computed five continuous output variables that were mapped to the avatar in

virtual space. Each of these outputs impacted the following in the virtual tree avatar: the rotation of the tree canopy, modified root color, root network growth rate, level of audio distortion, and cut-off frequency for the audio low-pass filter. Each of these individual avatars were interconnected at the roots, with each tree acquiring the sounds of other avatars when the virtual tree roots were interconnected.
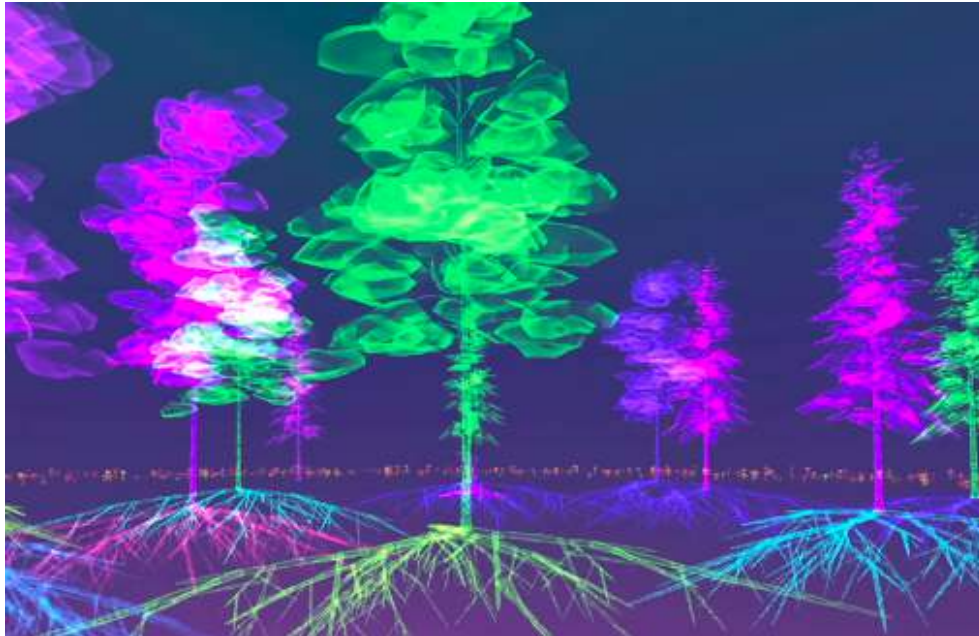

Fig.5. Screenshot of a virtual engagement with Intelligent Protest

30 The collective approach here with a virtual avatar gave new opportunities for civic engagement: the unique and embodied community-sourced AI-design points to new possibilities for AI and emerging technologies for humans as we pass into the new posthuman era: as Roman Mazurenko's mother noted in Section 3.1.2 above, *this is the new reality that we must learn to live and engage in*. With *Intelligent Protest*, this engagement can now be extended into political participation that transcends the barriers often placed on groups such as the disabled, working parents, and the elderly.

Discussion

31 What is the role of the posthuman companion? While Yang (2020) argues for an *unremarkable AI,* analogous to ubiquitous computing, that allows AI to fit into everyday life without drawing notice. Per the arguments of Dourish and Mainwaring (2012), the problematic colonialist assumptions that underlie ubiquitous computing extend to the unremarkable AI, the universal AI that is everywhere, passively watching and powerfully judging. The posthuman companion is an AI that stands out: its very artifice is understood and despite that, or because of it, a new and unique experience for both human and device is created. Novel inputs for both human and artificial intelligence contribute to the expanding potential for human self-understanding, expression, storytelling, creation, and political participation as shown above.

32 Central to the posthuman companion is the second type of intelligence defined by Pasquinelli (2016) as that of the holistic one, based on the idea of the *adaptive brain*. It is

this adaptive brain that gives an artificial intelligence with its own agency, its own existence.

Storytelling as encoding

33   How do we treat the machine intelligence in the posthuman companion? Kite and Nážin (2019) discuss that *Íŋyaŋ Iyé* is not a person like a human is, as it lacks relations and a proper name, but Kite (2022) writes that "Lakhóta philosophies provide frameworks for the ontological inclusion of nonhuman beings... these methodologies of listening to nonhuman entities are lived experiences with and through our lands and everything within them, seeable and unseeable, knowable and unknowable." In parallel, Birhane and van Dijk (2020) define artificial intelligence as "mediators in embodied and socially situated human practices." *Íŋyaŋ Iyé* is a specific instance of ancient future practice with indigenous cultures (cf. Lewis 2020), but more generally the exemplars discussed in Section 3 are exemplars of what Merleau-Ponty (2012) terms the phenomenological practice of "being-in-the-world" rather than removed from it, as is the universalist AI. The static historical knowledge of the universal AI is a novel on the shelf, a "representation of human life" (Benjamin 1973: 3) versus the experience of humans in live storytelling. The novel is a fixed form, a passive experience for the human reader, not an interactive storyteller in time and place that contributes to the making of time and place[16]. A story is the entire experience, the rich interaction of storyteller and audience, with voice and gesture, in the embodied situational moment that transcends the passive one-sided reading. It is this that parallels the experience of a human and a posthuman companion. Each experience gained by the human participant(s) in the interaction contributes to the unique moment that the human(s) have in the situated practice and participatory sense-making of the embodied experience.

34   For Hayles (2010), this relationship of interaction is stronger than that of knowledge as passive representation. As she discusses the digital subject in the age of the internet, drawing on the work of Mark Poster, she notes "the relation between the word and thing becomes conventional, arbitrary, whereas the relation within language between trace and voice is stronger, more direct" (Hayles 2010: 202), and in agreement with Benjamin (1973), "the creation of narrative may be an evolutionary adaptation of remarkable importance" (Hayles 2010: 197). Narrative with an agent we can interact with helps us create our own stories, enabling our understanding and explaining the less alien experiences with the artifacts discussed in Section 3 above. While they are of an intelligence that is nonhuman, as discussed in Kite and Nážin (2019), they provide an interaction our brains can make sense of. We cannot create narrative with the universal AI, the unexplainable and unanswerable black box of deep learning algorithms that many commercial systems now rely upon, because human participation in these is passive obedience, not understanding: this is the role of the human to the master algorithm, paralleling the controlled storytelling of the British media as discussed in Hall (2007).

35   Benjamin (1973) and Hayles both beg the question: how are these narratives constructed? How do we become posthuman and gain the company of the posthuman companion? Hayles again has an answer:

> When I suggest that we are virtual creatures, I mean to foreground the importance of processes for us as well. Processes connect the embodied materiality of the

creatures with the bodies we see; processes connect our visual/cognitive perceptions of them with the narratives we construct; and processes are reinscribed and reinterpreted as narrative representations when we make the creatures characters in stories of defeat and victory, evolution, and development.
Hayles 2010: 211

36   Through a process of decoding and encoding, the self, according to Hayles, "becomes a message" but "the self the receiver decodes is never exactly the same self the sender encoded" (Hayles 2010: 77). Through this, humans themselves become code, both interactive and creating what Barad (2011) terms *spacetimemattering* with the intra-actions[17] of the digital artifacts termed here as the posthuman companion.

37   If the humans become code, does that code have significant meaning in the experience of the human? In Hall's 1980 paper on encoding and decoding of media messages, he discusses that in media discourse (or in our case, more than discourse in the cases of creative and interactive forms of the posthuman companion), these encoded media messages must be "translated— transformed, again—into social practices if the circuit is to be both completed and effective. If no meaning is taken, there can be no consumption" (Hall 1980: 129). For the decoded message that is now the human experience after the communicative moment, the meaning-making will be interpreted in terms of their own frameworks of knowledge. This meaning-making then depends on the shared frameworks between AI and humans, and the strengths of the referants in the model powering the artificially intelligent agent (see Wharton 2021)[18]. With the posthuman companion and its focus on its particular and situated understanding of human experiences, these referants will be stronger than in a large universalist model with billions of parameters—such as that which is powering large language models such as ChatGPT.

38   Like Benjamin and his distinctions between the storyteller and the novel, Clarke (2014) notes that "neither systems for coding and transmission (such as digital media) nor coded structures (such as narrative texts) are capable of cognizing on their own—that is, of making internal or self-referential sense of either themselves or their objects". The posthuman companion is coded by humans using systems of symbols and representations to create command systems for the AI agents, but once created, the system is responding independently to the message from the human and cognizing to create an encoded message to transmit to humans, whether in linguistic form with *Replika* or *N'TOO*, aural messages from *Nami*, or visual and aural output from *Intelligent Protest*. It is beyond the scope of this paper to claim whether these creations are "alive" (see the discussion on the problem of agency below), but they do fall within the original goal of cybernetic systems theory as described by von Foerster as "a mode of behavior that is fundamentally distinct from the customary perception of the operations of machines with their one-to-one correspondence of cause-effect, stimulus-response, input-output, and so on" (van Forester 1990).

39   But do the posthuman companions *create meaning?* Clarke (2014), writing just before the explosion of artificial intelligence in the latter half of the 2010s claims: "technical objects are not autopoietic meaning systems: unlike the operations of consciousness and communication, they do not self-(re)produce meaning. Rather, on the plane of metabiotic systems, their particular function is to *convey* meaning, to transmit it. Their production is mediation. Like the trace before the sign, they spur the making of meaning, and once made, they make it leap over distances. Relative to the autopoietic realm, then, machines are the externalized receptacles for mentation, socialization,

communication, and memorialization, called forth by the continuous metabiotic need to structurally couple together ever-renewed, ever-reproduced psychic and social systems." While anything with the term *post-human* implies inherently a metabiotic state with human existence, are the post-human companions merely mediators of meaning as Clarke claims?

40   They are not merely mediators; instead, they exist in a spectrum of mediation from the less-independent to the more-independent. On the one hand, the work of *Intelligent Protest* acts as a mediator; they translate from human work into another form. Intelligent Protest gives a visual, albeit AI-enhanced and generated, representation of remote human input versus the more independent outputs of *Nami*, *N'TOO*, and *Replika*. While these projects began rooted in the meanings ascribed to them in music and language by Dinkins, Kuyda, and Sithi-Amnuai, the generative code that they possess allows them to break beyond being purely mediators of meaning. They generate meaning and code messages with an independence from their creators; they are not the passive novel, the narrative, the artwork left at a temporal scale to be formed into a semantic whole.

41   While Clarke and others have focused on the notion of the autopoietic system for AI, an enclosed system that is self-replicating and self-referencing, it is highly arguable that while neither human nor posthuman companion are autopoietic, rather, the human and posthuman companion live within a state of what Dempster (2000) refers to as *sympoiesis*. Dempster, an environmental studies scholar, defined these types of systems as complex and self-organizing (as are autopoietic systems), but they are also collectively producing and boundaryless systems, as well as "homeorhetic, evolutionary, distributively controlled, unpredictable, and adaptive" (Dempster 2000: 1). Any posthuman system, with a decentered human in a network of others, including the technological, cannot be autopoietic: such systems according to Haraway (2017) are "complex, dynamic, responsive, situated, historical systems", as are our examples in Section 3—each are complex and dynamic structures that respond and are built within a situated space and contain a specific (his)story to their creation – in other words, sympoietic systems. Information is not held within one autopoietic system, but is, as Dempster describes, distributed throughout a sympoietic system, and the system relies on "uncertainty and change for continual existence" (Dempster 2000: 14).

42   Can the universalist AI also be interpreted in the space of narrative? For this, we turn to the work of Hall (1980, 2007). As mentioned above, the universal AI desired in the creation of artificial general intelligence parallels that described by Hall (2007) of "professional broadcasting elites, with their own social formation, their own selective recruitment, their own social position, their own connections to and perspectives on power, their own professional competences and routines, their own professional ideologies" (Hall 2007: 382). The powerful tech companies today, such as Google and OpenAI, represent a different, but equally pernicious type of shared elitist ideals and control over a new powerful media source that controls the encoding of information. In contrast, the posthuman companions discussed in Section 3 are not universal encoders with a singular agenda and structure; they are heterogeneous and situated with particular and unique perspectives that draw heavily on the creators' life experiences with death, race and identity, cultural creation, and community. While a multitude of individuals have created projects using of OpenAI, the underlying structure has reproduced something Hall describes as "the actions of individual men, with a plurality

of viewpoints, are constrained by the structures in which they operate" (Hall 2007: 394).

Intra-action and participatory sense-making

43   We must now consider how encoded selves can become interactive. Before this, let us turn to the concept that both human and non-human are to be considered less as two separate entities, but rather within the same continuum. For Latour (1997) and Suchman (2007), the *actant*, whether human or not, is the source of an action, in this case of the active encoding and decoding of experiences. "An 'actor' in ANT is a semiotic definition—an actant—that is, something that acts or to which activity is granted by others. It implies no special motivation of human individual actors, nor of humans in general. An actant can literally be anything, provided it is granted to be the source of an action" (Latour 1997: 4). This is in line with Barad (2003), who writes that "all humans, not merely 'human' bodies come to matter through the world's iterative intra-activity—it's performativity... 'human' bodies are not inherently different from 'nonhuman' ones. What constitutes the 'human' (and the 'nonhuman') is not a fixed or pregiven notion, but nor is it a free-floating identity" (Barad 2003: 823). Barad's insistence on materialism strongly implies that these intra-actions of agents leave changes on the bodies they touch.

44   The actants in the posthuman companion space can be human; they can be embodied algorithmic output, as with *Íŋyaŋ Iyé* or *N'TOO*; they can be in virtual space, as with *Intelligent Protest*; they can be augmented creative tools like *Nami*. Regardless of the space, the intelligence, or the interaction, all of these actants are in a space, creating and/or narrating together. But, again, the fundamental question remains: how does this encoding and decoding process of actants in situ work? How do they leave these changes as indicated by Barad? For this, we turn to the work of DiPaolo et al. (2018) and Golonka and Wilson (2012) and the idea of situated practices and participatory sensemaking.

45   To examine more closely the possibilities of a situational intra-action work between two actants, we examine the work of DiPaolo et al. which offers the following as a potential explanation: *critical participation*, which they define as:

> self-consciously choosing and actively questioning and changing the frames of discourse (...). This ethics-as-practice is realized in keeping ourselves open to our own unfinished becoming – in other words, learning.
> Di Paolo et al. 2018: 14

46   Bodies for DiPaolo et al. are unfinished, as they are for Haraway (1988) and Barad (2003), and always in a state of unfinished becoming. While the work of DiPaolo et al. is focused on language, it is more broadly applicable in defining interaction as "a living stream of activity in the sociomaterial world of practices and history" (DiPaolo et al. 2018: 19), and the unfinished becoming is "a field of struggle, transformation, criticism, of human enaction" (DiPaolo et al. 2018: 19). The situational interactions of language "present a richer, more complex set of possibilities out of which trust, empathy, and mutual recognition can emerge (as can their opposites and troubles)" (DiPaolo et al. 2018: 516)[19]. Even in these situations, the humans who come to them as linguistic bodies (or for our purposes other discursive interactive bodies) are "self-contradictory, social products, and personal achievements, sustaining displaced relations to themselves, committing to choices and abiding in potentiality, coupling flows of self-and-other-

directed utterances" (DiPaolo et al. 2018: 21). These contradictions are where learning can happen, for the self and the other, for growth and experience[20]. As with ELIZA, where mistakes were necessary to move conversation forward, for DiPaolo et al., contradictions give paths forward in the situational intra-actions we are examining here.

47 But how to resolve these mistakes and contradictions, errors in the encoding and decoding between actants? DiPaolo et al. give a possible solution with *participatory sense-making*: "the coordination of intentional activity in interaction, whereby individual sense-making processes are affected and new domains of social sense-making and making can be generated that were not available to each individual on her own" (De Jaegher and DiPaolo 2007: 497).

48 This sense-making is both individual and co-authored: through each participant's own understanding of an interaction, the shared experience is interpreted, and the *shared learning* in the exchange where growth can happen: something *performed* socially and *enacted* as a shared practice. The depth of this performance and interaction is enacted by *degrees of participation*. While in language, these types of interactions are defined by Austin (1962) and Grice (1968, 1975), there is no specific framework defined for general participatory sensemaking given by DiPaolo et al. However, they do highlight what they believe drives participatory sense-making: *breakdowns*, as Di Paolo et al. note: "without the possibility and risk of breakdowns, there is no participatory sense-making… in this way, a *shared knowledge* is jointly constructed between the participants. (DiPaolo et al. 2018: 103).

49 This knowledge is not a totality of each participant's knowledge. It is specific to the moment, where "the practice of coordinating sensorimotor schemes together" (DiPaolo et al. 2018: 104), where each breakdown and coordination drive the sense-making forward. Research discussed in their work points to the conclusion that during "a social interaction the brain-bodies of the participants seem to form an entangled system" (Di Paolo et al. 2018: 107) where organic bodies can be deeply in tune with each other. If organic bodies can interact in this way, then potential research remains to show how this works between organic bodies and bodies with animism but created from inorganic materials. Di Paolo et al. give one final note on participatory sense-making: further research seems to point to the fact that humans are *born* to interact[21] and as the sensorimotor body develops, it does so as an *intersubjective body*, where many cognitive and affective capabilities of human bodies are rooted in intersubjective experience and social interaction. Given this primacy of interaction for cognitive action in the human existence, an active experience with such *affordances for action,* by which our sensorimotor bodies are given information we can react to (Golonka and Wilson 2012) as given by the projects and environments described in Section 3, we now have a possible path to the *how* of the post-human companion. Further exploration of this idea, however, will remain for future work.

Agency and situated knowledge

50 One key point we have yet to address - is what gives power back to the humans in this world with a posthuman companion? What is the role of agency versus the passivity of being ruled over by the gods of the master algorithm? And what of the potential for agency in a non-human actant? Hayles (2000) addresses this "crisis of agency":

> If on the one hand, humans are like machines, whether figured as cellular automata or Turing machines, then agency cannot be securely located in the conscious mind. If, on the other hand, machines are like biological organisms, they must possess the effects of agency even though they are not conscious. In these reconfigurations, desire and language, both intimately connected with agency, are understood in new ways.... Language, emerging from the operations of the unconscious figured as a Turing machine, creates expressions of desire that in their origin are always already interpenetrated by the mechanists, no matter how human they seem. Finally, if desire and agency springing from it are at bottom nothing more than the performance of binary code, then computers can have agency as fully authentic as humans.
> Hayles 2010: 177

51 For Lacan, agency and language, encoding and decoding for the human subject, was rooted in the subconscious, a distinctly human feature (Lacan 1977); but for Wolfram, in his vision of the universal computation, this was emergent as a byproduct of binary computation, freeing agency from its chains of being an option only for organic life (Wolfram 2002). Agency as an emergent property can belong to any being of code, whether human or machine.

52 Tied to our understanding of agency, we now turn to Barad (2003), who offers us a bridge leading from properties of agency and emergence to our final concern: that of situated knowledge. Barad's theory to replace that of representationalist thinking, as discussed at length in Adam (1998), is that of *agential realism.* Her suggestion is to begin from a new metaphysical starting point: a relational ontology that allows us to "acknowledge nature, the body, and materiality in the fullness of their becoming without resorting to the optics of transparency or opacity, the geometries of absolute exteriority or interiority, and the theorietization for the human as either pure cause or pure effect while at the same time remaining resolutely accountable for the role 'we' play in the intertwined practices of knowing and becoming" (Barad 2003: 12). Barad, a physicist by training, relies on the work of Niels Bohr for her analysis: she notes that Bohr rejected the atomistic metaphysics that takes "things" as the basic entity or "things do not have inherently determinate boundaries or properties, and words do not have inherently determinate meanings" (Barad 2003:813). Crucially, for our examination, it is the key insight of Barad based on Bohr's so-called Uncertainty Principle[22] of *agential intra-actions*, which are the key to her epistemological framework. In parallel to the thinking of Hayles (2000; 2010), Wolfram (2002), and others, knowledge is emergent—effectively that knowledge rises from retaliation intra-action, or in her own words: "*phenomena are the ontological inseparability of agentially intra-acting 'components': that is, phenomena are ontologically primitive relations – relations without preexisting relata*" (Barad 2003: 815).

53 The posthuman implications of Barad's arguments are that humanity is not a required condition for material bodies with agency– "what constitutes the 'human' (and the 'nonhuman') is not a fixed or pre-given notion, but nor is it a free-floating identity" (Barad 2003: 823). Her previously noted thoughts on changes wrought by participatory intra-actions give us a result that agency "is a matter of changes in the apparatuses of bodily production, and such changes take place through various intra-actions, some of which remake the boundaries that delineate the differential constitution of the 'human'. Holding the category 'human' fixed excludes an entire range of possibilities in advance, eliding important dimensions of the workings of power" (Barad 2003: 826). By returning the agency not only to the human, but ascribing to the non-human as well,

we return that an artificially intelligent agent is not all-powerful, nor is it neutral, it is situated within a chain of causal connections resulting in the moments of interaction (see Crawford 2022). The human is no longer at the mercy of the algorithm: humans have the power of creation in the interactions and the power of the creative forces necessary to treat machines not as gods nor slaves (see Birhane and van Dijk 2021 for these issues of 'robot slavery'), but rather as agents with their own history, creation, cause, and justifications for existence and interaction. Per Hayles, we now have the justification for her statement that "material embodiments do not circulate effortlessly because they are always instantiated, specific, and located in a certain time and place" (Hayles 2010: 206).

54   What would a situated knowledge look like in the space of AI? We have agency, we have relative understanding, and we have that actants are existent bodies in material space that participate together. But we must address the issues of power that are inherent in relations between human and machine intelligences, between human bodies and machine algorithms, and between the hierarchies of power inherent in any situation given history? We cannot allow, as Haraway (1988) describes, "distance the knowing subject from everybody and everything in the interests of unfettered power" (Haraway 1988: 581). This *god-trick*, as termed by Haraway, or the *view from* nowhere as per Adam (1998, 2005) is the opposite of knowledge as exchange—our key understanding for the posthuman companion. In parallel with DiPaolo et al., Barad, and Hayles, Haraway discusses that senses are active perceptual systems, "building on translations and specific *ways* of seeing" (Haraway 1988:583) and that by transcending the *god-trick*, we can achieve the feminist objectivity: "about limited location and situated knowledge" rather than looking at knowledge as "transcendence and splitting of subject and object" (Haraway 1988: 583). For Haraway, the situated self, the *knowing self* is "partial in all its guises, never finished, whole, simply there and original; it is always constructed and stitched together imperfectly and *therefore* able to join with another, to see together without claiming to be another" (Haraway 1988: 586). This situated self, human, non-human or the AI agent, is the self that can best participate in the space: our best hope for beating the god-trick and omniscience of universal ubiquitous AI.

55   Situated knowledges for Haraway are indeed about communities, about being "***somewhere in particular***" [emphasis mine] (Haraway 1988: 590). Haraway's vision of the situated knowledge leads to the situated interaction, which gives "the joining of partial views and halting voices into a collective subject position that promises a vision of the means of ongoing finite embodiment, of living within limits and contradictions – of views from somewhere" (Haraway 1988: 590). This joint creation of experience, of knowledge as interaction or intra-action (per Barad), gives us an "object of knowledge… pictured as an actor and agent, not as a screen or a ground or a resource, never finally as slave[23] to the master that closes off the dialectic in his unique agency and his authorship of 'objective' knowledge" (Haraway 1988: 592). There is no master encoder or decoder: the encoding and decoding happen *in situ*, between animate actants, whether mechanical or biological, on equal grounds of power.

56   Artifacts such as those discussed in Section 3 are constructed *from* somewhere, openly, and are acknowledged as being created within situated spheres: from love, grief, creativity, or vision, in human systems of belief without a pretense of universality. They are designed with material intent in their interactivity: while *Replika* is designed to interact on the mobile space, it was designed with the *medium in mind.* These forms of

interactivity, of material existence, yield AI projects that have performativity and interactivity at their heart. While they use the methods of other forms of artificial intelligence, they do not ignore their human roots, nor do they stand in judgment. They stand as *companion*, as a helper and assistant, reacting to and adapting in reaction to the interplay, linguistic and kinetic, of human users. In contrast to the divine and untouchable AI of large systems, these systems are mutable by design, more akin to the life forces of humanity that gave birth to them, touched and changed by experience.

Conclusion

> It is as if something that seemed inalienable to us, the securest among our possessions, were taken from us, the ability to exchange experiences.
> Benjamin 1973: 83

57　The ephemeral engagement is the best of being human: we as the makers and shapers of our own experiences, not the passive worshippers, accepting the knowledge of an unknowable AI that can never truly know us in our individual lives. The situated experience of engagement with the artificial artifact requires not a meaningless god or stochastic parrot (see Bender et al. 2021), but rather what Scott Benesiinaabandan notes in his 2019 piece in the Indigenous AI Protocol Paper: the key participant in any ceremonial context is the *oshkaabewis*, or helper. In his own words:

> "Seeing the opportunity in deep learning programs and treating them as **oshkaabewis** rather than a **skynet**, is the key to guiding the ethical and productive use of AI."
> --Benesiinaabandan 2019: 129

58　What is our posthuman future with AI? Can we create a future with AI where we live and grow with it, as we do our fellow humans? Donna Haraway talked about how the dream of a common language that was the feminist dream is not only not possible—it isn't a dream at all, but a nightmare. Rather than the common language, we can have what Haraway terms an *infidel heteroglossia*, a cyborg existence where we acknowledge fractured and overlapping meanings. These fractures and misunderstandings are what drive the conversation and human AND machine understanding forward and are essential to our growth and continued existence.

59　A parting thought is from Matteo Pasquinelli, in a recent work: "Machine intelligence is not anthropomorphic, but sociomorphic: it imitates and feeds on the condividual structures of society rather than the individual ones" (Pasquinelli 2016). The AIs we build and we live with—whether they control us, or we interact with them and live with them as helpers and collaborators or even tools— depend on our society and how we choose to build our societies. If we choose to live in systems of coexistence, of equity, and of equality, we will build better AI. If we don't, if we choose the all-controlling AI because it's easier to be passive and controlled rather than be active participants, we will live within the world of the god-trick rather than the harder world of the cyborg.

60　Despite what we read about in the news and in endless conferences about our need to drive towards artificial general intelligence, we have already solved the problem of artificial intelligence. The focus on the universal historical knowledge and the expected predictive behavior of such an omniscient algorithm has obscured the fact we have done so. Humans have already created intelligences to interact with our own, to augment our existence, and to share experiences with. In rethinking our ideas of what

artificial intelligences are possible, we should always remember that we have already achieved the beginnings of livable futures, so that we can reclaim our stories for ourselves and those, posthuman or not, we choose to share them with.

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NOTES

1. https://backlinko.com/social-media-users

2. See https://propublica.org/article/how-we-analyzed-the-compas-recidivism-algorithm

3. See https://theguardian.com/education/2020/aug/17/uk-exams-debacle-how-did-results-end-up-chaos

4. See https://phys.org/news/2019-06-facebook-ads.html

5. See Ryan-Mosley (2021)

6. https://en.wikipedia.org/wiki/Languages_used_on_the_Internet

7. https://commoncrawl.org/the-data/

8. https://twitter.com/theshawwn/status/1320282151645073408

9. https://www.eleuther.ai/projects/owt2/

10. https://meta.wikimedia.org/wiki/List_of_Wikipedias_by_language_group

11. Referring to Pedro Domingues' use of the term: see Domingues' work *The Master Algorithm*

12. In a recent interview, OpenAI's CEO Sam Altman claimed that his company was building a "magic intelligence in the sky" (see Murgia 2023)

13. "the posthuman is a recognition that agency is always relational and distributed; cognition as embodied through human flesh and extended into the social and technological environment"; and "in the posthuman, there are no essential differences or absolute demarcations between bodily existence and computer simulation…".

14. See Keegan 2020.

15. Defined by Delalande (1988) as "that necessary to mechanically produce sound".

16. "causal structures are stabilized and destabilized does not take place in space and time but happens in the making of spacetime itself" (Barad 2007:140).

17. See Barad (2003, 2007, 2011).

18. "In its relation to its referant, a model is weak or strong, sometimes oscillating between the two." (Wharton 2021: 119).

19. See Bender and Koller (2020) for a more detailed explanation of the issues with communicative intent and large language models.

20. For a parallel in art and storytelling, see Mukařovský (1978).

21. Possible linguistic parallels can be found in Chomsky (1957).

22. As Barad notes, it is not a matter of uncertainty, but indeterminacy (Barad 2003).

23. The use of the term "slave" in much critical theory is often written by white Americans or Europeans. It is problematic in the AI literature for reasons of assuming knowledge and position for those formerly enslaved and their descendants: see Birhane and van Dijk 2020.

ABSTRACTS

Universalist approaches to AI such as large expert systems in the 1990s and present-day large language models seek to create an omniscient form of artificial intelligence that is deeply colonialist and represent a loss of meaning in the sheer conglomeration of information without context or connection. This work explores these approaches to AI and contrasts them with the *posthuman companion*, AI systems created as storytellers, memorials, and creatively and ethically driven agents rooted in the lived experiences of their creators. Following a survey of agential systems, they are then examined using postcolonial and feminist lenses to look at the possibilities for our shared stories and potential futures.

Les approches universalistes de l'IA, telles que les grands systèmes experts des années 1990 et les grands modèles de langage actuels, cherchent à créer une forme omnisciente d'intelligence artificielle, laquelle est profondément colonialiste et représente une perte de sens, produisant un simple conglomérat d'informations sans contexte ni connexion. Ce travail explore ces approches de l'IA et les met en contraste avec le compagnon posthumain, les systèmes d'IA s'apparentant à des conteurs et des agents créatifs et éthiques enracinés dans les expériences vécues de leurs créateurs. Après une étude des systèmes agentiels, nous les examinerons dans une perspective postcoloniale et féministe afin d'étudier les possibilités de produire des histoires partagées et des futurs potentiels communs.

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