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More-Than-Human Design and AI: In Conversation with Agents

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Abstract
This one-day workshop brings together HCI researchers, designers, and practitioners to explore how to study and design (with) AI agents from a more-than-human design perspective. We invite participants to experiment with thing ethnography and material speculations, as a starting point to map and possibly integrate emergent frameworks and methodologies for more-than-human design. By using conversational agents as a case, participants will discuss what a more-than-human approach can offer to the understanding and design of AI systems, and how this aligns with third-wave HCI concerns of networks, infrastructures, and ecologies.

Author Keywords
More-than-human design; co-performance; human-AI interaction; conversational agents; thing ethnography; material speculations

CSS Concepts
• **Human-centered computing~HCI design and evaluation methods** • Human-centered computing~Field studies

Background and Motivation
One of the unique challenges to HCI posed by Artificial Intelligence (AI) is interpreting complex models, such as deep neural networks. This has led governments,

researchers, and activists to advocate for more explainable AI and better accountability in decision-making processes. Unlike traditional software, faulty decisions and hidden biases in AI systems are harder to pinpoint because the "code path" may include millions of mathematical operations. For that reason, it is important to monitor how AI systems behave in different contexts, and how they respond to different people in different situations.

This challenge opens up a new research space for collaborations in HCI, at the productive overlap of data science, design, the social sciences, and philosophy. There has been growing attention over the last decades to issues of privacy, security, fairness, and explainability in the outcomes of AI systems [1]. But the wider contexts and complex networks of social relations in which the behavior of these systems is embedded remain underexamined [1, 13, 16]. As a result, there is also a lack of consideration for alternative discourses on AI ethics such as care, equity, welfare, or ecological networks [10], and for alternative alignments in design between humans and nonhumans [4, 6, 7].

A critical question for the HCI community is how emergent more-than-human centered approaches can help address these challenges by surfacing the comprehensive relationships and networks in which AI systems are embedded [4]. For instance, it is not enough to simply observe how someone uses an Amazon Alexa voice assistant. In addition, we have to engage with multiple perspectives, ecologies, and infrastructures surrounding Alexa, including how the model was trained, how the artefact is contextually configured in use, and how it learns from that context.

This workshop aims to advance HCI research by exploring emergent frameworks, tactics, and methods to understand intelligent agents as part of broader and evolving socio-technical systems. By doing so, the workshop engages with particular aspects of third-wave HCI, such as artefact ecologies, multiplicity of perspectives, and infrastructuring [4,11].

More-than-Human Approaches in HCI

In the last decades, HCI scholars have adopted more-than-human approaches in either design and/or research [3, 5, 8, 12, 20]. In parallel, novel ethnographic approaches have been proposed for studying algorithms as culture [17] or observing machine behavior in the same way we study human or animal behavior [15]. Relatively consolidated design approaches to access the unique perspectives, trajectories, and potential worldviews of intelligent things include thing ethnography [8,9]. This method considers intelligent things as experts of their worldview and includes them as active participants in the design process. These techniques are often used in the fuzzy front-end of the design process but can be also used to interrogate existing products in order to uncover hidden biases and speculate about future unintended consequences.

The Case of Conversational Agents

Voice assistants represent a category of agents that pervasively mediate our everyday interactions with technology, and each other [14]. For the workshop, we position conversational agents as nonhuman things that '*act as'* or are interpreted as '*acting like'* humans. We will use the case as a provocation for investigating the impact of AI in everyday life, and surfacing the wider contexts and their complex networks of socio-technical

relations. Conversational agents are a particularly interesting case for how they are positioned within dominant narratives and stereotypes of interaction, and how they come to be contextually configured in use. For example, conversational agents are often personalized through female voices and associated with feminized types of labor [18, 19]. As a consequence, human users respond to these devices in stereotypically gendered ways including forms of gendered abuse or sexual innuendo [2].

Themes, Methods, and Goals

In the workshop, we will invite participants to engage ethnographically and speculatively with conversational agents along three inter-dependent dimensions: (1) How the agents present themselves to humans; (2) What relations and ecologies they create within the contexts in which humans use them; and (3) What infrastructures they need. Questions and topics of discussion include but are not limited to:

(1) Agents: Human-likeness, self-representation, and personality. What types of responses do conversational agents give to ethical issues, and how does that influence our expectations toward them? What types of questions are systematically avoided? How do they present themselves and how aware are they of biases?

(2) Relations and ecologies: Contexts of use, human and non-human relations, and ecologies of interactions. What kinds of relations and ecologies do conversational agents elicit through their interaction with humans, as well as with other non-human agents? How do these relations change with shifting contexts of use? What kinds of relations matter more to humans, and why? In what instances does the authority/power of a conversational agent become visible, and problematic?

(3) Infrastructures: Training data, security, privacy, and commercial interests. What material and immaterial infrastructures, such as human labor, data, and planetary resources, can be disclosed by using decentered forms of ethnography? How does the disclosing of infrastructures challenge traditional divisions of design and use? How could that help us uncover biases and their origin? What would it take to design an unbiased agent?

By inviting conversational agents as participants of the workshop we will experiment with more-than-human ethnographic methods [8] and material speculations [21]. The expected outcomes of the workshop –a video, a series of questions for conversational agents to discuss ethical issues, and a publication– will serve to map and integrate emergent frameworks and methodologies for more-than-human design. Aligned with third-wave HCI, these frameworks will help surface wider contexts and complex socio-technical networks in which AI systems are embedded, and thus address some of the unique challenges posed by AI.

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