

# Future Dialogues: Personal AI Assistants and Their Interactions with Us and Each Other

Austin L. Toombs  
altoombs@iu.edu  
Indiana University  
Bloomington, Indiana, USA

Robin N. Brewer  
rnbrew@umich.edu  
University of Michigan  
Ann Arbor, Michigan, USA

Selma Šabanović  
selmas@iu.edu  
Indiana University  
Bloomington, Indiana, USA

Kyle Montague  
kyle.montague@northumbria.ac.uk  
Northumbria University  
Newcastle upon Tyne, UK

Suchismita Naik  
naik33@purdue.edu  
Purdue University  
West Lafayette, Indiana, USA

Derek Whitley  
derek@vivum.ai  
ViVum Computing  
Bloomington, Indiana, USA

Richmond Y. Wong  
rwong34@gatech.edu  
Georgia Institute of Technology  
Atlanta, Georgia, USA

Paul C. Parsons  
parsonsp@purdue.edu  
Purdue University  
West Lafayette, Indiana, USA

## ABSTRACT

We propose a Special Interest Group (SIG) session during which participants will discuss future possible configurations of personal artificial intelligence assistants (PAIAs) and their potential capabilities to interact with other humans and other personal AI assistants. Participants will engage in design fiction and speculative design activities to discuss the boundaries of acceptable roles that personal AI assistants may play in our relationships in the future. The goal is for discussion and activities during the SIG to help attendees think through their own research and design work as it relates to exploring the impact that PAIAs and PAIA-like systems might have on our relationships with others and our relationships with technology. In the introduction to the SIG, we will use design fictions, sci-fi analyses, and short case studies to introduce a broad conceptual playing field that will inspire discussion for the 75-minute session.

## CCS CONCEPTS

• **Human-centered computing** → **Computer supported cooperative work**; **Social navigation**; **User centered design**.

## KEYWORDS

AI Assistants, Human-In-The-Loop AI, Virtual Agents

### ACM Reference Format:

Austin L. Toombs, Kyle Montague, Richmond Y. Wong, Robin N. Brewer, Suchismita Naik, Paul C. Parsons, Selma Šabanović, and Derek Whitley. 2024. Future Dialogues: Personal AI Assistants and Their Interactions with Us and Each Other. In *Companion of the 2024 Computer-Supported Cooperative Work and Social Computing (CSCW Companion '24)*, November 9–13, 2024, San Jose, Costa Rica. ACM, New York, NY, USA, 4 pages. <https://doi.org/10.1145/3678884.3687139>



This work is licensed under a Creative Commons Attribution International 4.0 License.

CSCW Companion '24, November 9–13, 2024, San Jose, Costa Rica  
© 2024 Copyright held by the owner/author(s).  
ACM ISBN 979-8-4007-1114-5/24/11.  
<https://doi.org/10.1145/3678884.3687139>

## 1 MOTIVATION AND BACKGROUND

The rapid integration of Large Language Models (LLMs) like ChatGPT, Bard, and LLaMa into everyday life, coupled with the promise that they might learn and adapt to our needs over time, has made it clear that it is possible many of us will use *personal* AI assistants (PAIAs) in the near future. Indeed, Microsoft's recently-released Copilot hints at a hyper-personalized, multi-application AI assistant experience<sup>1</sup>. While we continue to struggle with the norms and policies surrounding *individual* uses of LLMs (e.g., LLM usage for publishing papers or writing messages to loved ones), we might soon face the exponentially more complex issue of how we handle the roles that PAIAs play in our interpersonal communications and, as a result, our *relationships*.

Common dominant conceptions of AI assistants tend to focus on AI being used to increase efficiencies. Whether helping individuals more quickly schedule reservations at a restaurant [9] or helping companies rely less on human labor in customer service, these envisioned human-AI relationships feel relatively narrow and do not capture the full richness of human life experiences [8]. CSCW scholars have explored the role(s) that AI-like systems may have on relationship development, such as by describing how older adults in long-term care settings anthropomorphize their voice assistants to treat them as social companions [13] and how we understand the ethical boundaries of such voice technology use [12]. Likewise, there is growing investigation about the potential ethical harms related to AI assistant usage in both human-human and human-AI relationships [5].

In contrast to the dominant “AI assistant” design metaphor, media scholars have suggested that conceptualizing AI agents as writing or creating characters can open up a broader design space for interaction while recognizing their status as artificial creations [10, 14]. Computer-mediated communication scholars have begun to ask questions about AI-mediated communication that align with questions we will prompt audience participants to discuss during this SIG, including how tools like Grammarly, Gmail auto-prediction,

<sup>1</sup><https://adoption.microsoft.com/en-us/copilot/>

and even automatic emoji suggestions demonstrate a shift toward how we allow AI to mediate our conversations with others [6]. In addition to these newer explorations of AI, we also acknowledge the relevant history of automation research. For example, potential over-reliance on PAIAs in our *relationships* can lead to de-skilling of relationship communication, as has been found with over-reliance on automation in complex sociotechnical systems (e.g., [1]).

We recognize that public discourse about AIs, and PAIA-like systems in particular, is frequently future-oriented and a topic in science and speculative fiction (e.g., the movie *Her*). Our SIG is inspired by the connections that researchers have previously drawn among design, research, fiction, and corporate and public imaginations [3, 7, 11, 19, 20]. In particular, we turn to design fiction, a practice that creates imagined worlds to critically analyze, explore, and question possible alternative futures [2]. HCI research has explored how design fiction can be a useful method to both consider new possibilities and analyze the social, political, and technical implications of those possibilities in their fictional worlds [4, 15–18]. Recognizing these rich connections between speculation, fiction, discourse, and real-world technology development, in this SIG we propose using design fiction and speculative design activities as a way to encourage audience participants to imagine and critically discuss new ways that PAIAs can interact as part of relationships.

Our **immediate goal** with this SIG is to establish an initial community of scholars interested in these issues and to introduce potential collaborators who have related specific interests that also relate to how PAIAs or similar agents might influence our relationships by interacting on our behalf. We will use design fiction and speculative design activities to encourage critical discussions in small group settings, guided by the schemas and prompts presented in the next two sections. The final 10 minutes of the SIG will be dedicated to allowing participants to follow up with others about conversations they engaged in or ideas they heard throughout the SIG. Our **long-term goal** for this community, which we will accomplish through future workshops and community discussions, is to develop a set of ethical questions and concerns about PAIAs that can guide future scholarship and to create a set of artifacts that can prompt future discourse.

## 1.1 SIG Questions and Prompts

To encourage participants to explore many possible roles that PAIAs might play in our future relationships, we will use the following questions to organize audience participants into small discussion groups (though we will also encourage the groups to explore beyond the prompts they are organized around):

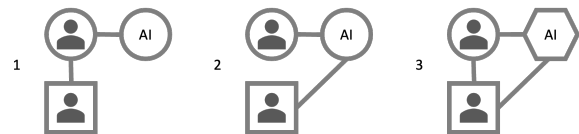
- How can PAIAs optimally balance acting as independent entities and direct representatives of their users?
- What mechanisms should be implemented to manage the inheritance, memorialization, or transfer of PAIAs and their associated data?
- How should PAIAs adapt their behavior and responses in situations with distinct social power imbalances?
- How can PAIAs be configured or programmed to actively participate in or drive social and political activism while adhering to legal and ethical guidelines?

- Should PAIAs strive to emulate human characteristics, or openly communicate and act in alignment with their machine nature?
- How can PAIAs intelligently navigate complex, context-dependent privacy boundaries and ensure secure management of personal information?
- How should PAIAs alter their representation and communication styles based on the relationship and context of the interacting parties?
- How can PAIAs exchange user preferences to create enriched and personalized verbal and visual interactions while respecting user privacy?

These questions cut across a broad range of concerns relevant to CSCW scholarship. Each participant will be encouraged to bring their unique expertise to these discussions, and to use these questions as a catalyst to think expansively about the roles that PAIAs might play in the contexts they study.

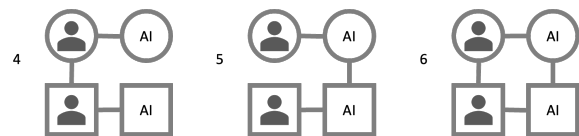
## 1.2 Design Fiction Scenarios Generation with Schemas for Inspiration

During the small group discussions, participants will be asked to create scenarios that highlight the core tensions their group identifies. These scenarios can be depicted through one-off sketches focusing on specific features or through storyboards illustrating longer-term interactions. Each group will be provided with a set of schemas that explore future human-AI configurations, both in terms of interactions with other people and with other PAIAs. These schemas are intended to serve as sources of inspiration by encouraging participants to apply them to their prompts, fostering creative and critical thinking. Participants are encouraged to interpret these schemas (illustrated in Figures 1, 2, 3, and 4) in their own way or to develop new schemas that emerge during their discussions.



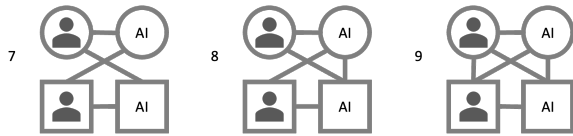
**Figure 1: Potential configurations of Humans, their Personal AI Assistants (AI), and other humans**

- (1) Someone consults their PAIA to help them reply to a work email in a professional way, or to re-word harsh feedback.
- (2) A husband asks his partner's PAIA to remind them about trash day after their current meeting is over.
- (3) The family's shared PAIA is helping them brainstorm costume ideas.



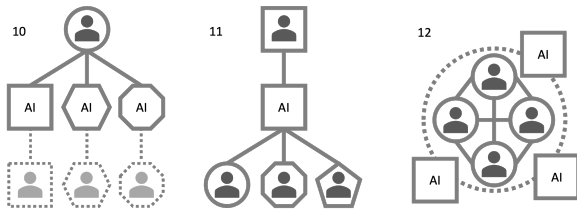
**Figure 2: Potential configurations of Humans, their Personal AI Assistants (AI), and other humans or AIs**

- (4) Collaborators use their PAIAs as personal knowledge management entities to re-construct a project timeline.
- (5) Work colleagues collaborate asynchronously while their PAIAs interact directly and continuously.
- (6) Friends discuss future plans while they offload the logistics of those plans onto their PAIAs.



**Figure 3: Potential configurations of Humans, their Personal AI Assistants (AI), and other humans or AIs**

- (7) A couple attempts to surprise each other with Taylor Swift tickets, which is a delicate enough operation that they do not want their PAIAs to talk to each other for fear of being found out.
- (8) Non-amicably divorced parents work out the logistics of their split custody for the next month.
- (9) Two people who know and trust each other very well, but who still cannot figure out what to do for dinner.



**Figure 4: Potential configurations of Humans, their Personal AI Assistants (AI), and other humans or AIs**

- (10) An older adult who is lonely starts a conversation about their day with the PAIAs of a few people who he feels like he might otherwise be burdening.
- (11) Someone who recently tested positive for COVID-19 relies on her PAIA to cancel a party.
- (12) Collaborators ask a few trusted, specialty PAIAs to keep an eye out for patterns they might be missing.

**ACKNOWLEDGMENTS**

We thank the participants of our preliminary workshop on this topic at the Digital Civics Exchange 2024 conference. Kyle Montague thanks the EPSRC (EP/Y030729/1 UKRI AI Centre for Doctoral Training in Citizen-Centred Artificial Intelligence).

**REFERENCES**

[1] Lisanne Bainbridge. 1983. Ironies of automation. In *Analysis, design and evaluation of man-machine systems*. Elsevier, 129–135.

[2] Paul Coulton, Joseph Lindley, Miriam Sturdee, and Mike Stead. 2017. Design Fiction as World Building. <https://core.ac.uk/download/pdf/76962562.pdf>.

[3] Paul Dourish and Genevieve Bell. 2014. “Resistance is futile”: reading science fiction alongside ubiquitous computing. *Pers. Ubiquit. Comput.* 18, 4 (April 2014), 769–778.

[4] Casey Fiesler. 2021. Innovating like an optimist, preparing like a pessimist: Ethical speculation and the legal imagination. *Colo. Tech. LJ* (2021).

[5] Iason Gabriel, Arianna Manzini, Geoff Keeling, Lisa Anne Hendricks, Verena Rieser, Hasan Iqbal, Nenad Tomašev, Ira Ktena, Zachary Kenton, Mikel Rodriguez, Selim El-Sayed, Sasha Brown, Canfer Akbulut, Andrew Trask, Edward Hughes, A. Stevie Bergman, Renee Shelby, Nahema Marchal, Conor Griffin, Juan Mateos-Garcia, Laura Weidinger, Winnie Street, Benjamin Lange, Alex Ingerman, Alison Lentz, Reed Eger, Andrew Barakat, Victoria Krakovna, John Oliver Siy, Zeb Kurth-Nelson, Amanda McCroskery, Vijay Bolina, Harry Law, Murray Shanahan, Lize Alberts, Borja Balle, Sarah de Haas, Yetunde Ibitoye, Allan Dafoe, Beth Goldberg, Sébastien Krier, Alexander Reese, Sims Witherspoon, Will Hawkins, Maribeth Rauh, Don Wallace, Matija Franklin, Josh A. Goldstein, Joel Lehman, Michael Klenk, Shannon Vallor, Courtney Biles, Meredith Ringel Morris, Helen King, Blaise Agüera y Arcas, William Isaac, and James Manyika. 2024. The Ethics of Advanced AI Assistants. [arXiv:2404.16244 \[cs.CY\]](https://arxiv.org/abs/2404.16244)

[6] Jeffrey T Hancock, Mor Naaman, and Karen Levy. 2020. AI-Mediated Communication: Definition, Research Agenda, and Ethical Considerations. *J. Comput. Mediat. Commun.* 25, 1 (Jan. 2020), 89–100.

[7] Christina N Harrington, Shamika Klassen, and Yolanda A Rankin. 2022. “All that You Touch, You Change”: Expanding the Canon of Speculative Design Towards Black Futuring. In *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems* (New Orleans, LA, USA) (CHI '22, Article 450). Association for Computing Machinery, New York, NY, USA, 1–10.

[8] Steve Harrison, Phoebe Sengers, and Deborah Tatar. 2011. Making epistemological trouble: Third-paradigm HCI as successor science. *Interact. Comput.* 23, 5 (Sept. 2011), 385–392.

[9] Scott Huffman. 2019. Book a table with the Google Assistant across the country on more devices. <https://blog.google/products/assistant/book-table-google-assistant-across-country-more-devices/>. Accessed: 2023-10-11.

[10] Janet Horowitz Murray. 1998. *Hamlet on the holodeck: the future of narrative in cyberspace*. MIT Press, Cambridge, Mass.

[11] Renee Noortman, Mathias Funk, Kristina Andersen, and Berry Eggen. 2021. What Would Margaret Atwood Do? Designing for Utopia in HCI. In *Proceedings of the 24th International Academic Mindtrek Conference* (Tampere/Virtual, Finland) (Academic Mindtrek '21). Association for Computing Machinery, New York, NY, USA, 72–80.

[12] Bruna Oewel, Tawfiq Ammari, and Robin N. Brewer. 2023. Voice Assistant Use in Long-Term Care. In *Proceedings of the 5th International Conference on Conversational User Interfaces* (Eindhoven, Netherlands) (CUI '23). Association for Computing Machinery, New York, NY, USA, Article 24, 10 pages. <https://doi.org/10.1145/3571884.3597135>

[13] Alisha Pradhan, Leah Findlater, and Amanda Lazar. 2019. “Phantom Friend” or “Just a Box with Information”: Personification and Ontological Categorization of Smart Speaker-Based Voice Assistants by Older Adults. *Proc. ACM Hum.-Comput. Interact.* 3, CSCW, Article 214 (nov 2019), 21 pages. <https://doi.org/10.1145/3359316>

[14] Luke Stark. 2024. Animation and Artificial Intelligence. In *2024 ACM Conference on Fairness, Accountability, and Transparency (FAccT '24)*. ACM, 9. <https://doi.org/10.1145/3630106.3658995> Publisher: Open Science Framework.

[15] Miriam Sturdee, Joseph Lindley, Conor Linehan, Chris Elsdon, Neha Kumar, Tawanna Dillahunt, Regan Mandryk, and John Vines. 2021. Consequences, Schmonsequences! Considering the Future as Part of Publication and Peer Review in Computing Research. In *Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems* (Yokohama, Japan) (CHI EA '21, Article 95). Association for Computing Machinery, New York, NY, USA, 1–4.

[16] Austin L Toombs, Derek Whitley, and Colin M Gray. 2020. Autono-preneurial Agents in the Community: Developing a Socially Aware API for Autonomous Entrepreneurial Lawn Mowers. In *Companion Proceedings of the 2020 ACM International Conference on Supporting Group Work*. 69–82.

[17] Lauren Wilcox, Robin Brewer, and Fernando Diaz. 2023. AI Consent Futures: A Case Study on Voice Data Collection with Clinicians. *Proc. ACM Hum.-Comput. Interact.* 7, CSCW2, Article 316 (oct 2023), 30 pages. <https://doi.org/10.1145/3610107>

[18] Richmond Y Wong, Vera Khovanskaya, Sarah E Fox, Nick Merrill, and Phoebe Sengers. 2020. Infrastructural Speculations: Tactics for Designing and Interrogating Lifeworlds. (April 2020).

[19] Richmond Y Wong and Deirdre K Mulligan. 2016. When a Product Is Still Fictional: Anticipating and Speculating Futures through Concept Videos. In *Proceedings of the 2016 ACM Conference on Designing Interactive Systems* (Brisbane, QLD, Australia) (DIS '16). Association for Computing Machinery, New York, NY, USA, 121–133.

[20] Richmond Y Wong, Ellen Van Wyk, and James Pierce. 2017. Real-Fictional Entanglements: Using Science Fiction and Design Fiction to Interrogate Sensing Technologies. In *Proceedings of the 2017 Conference on Designing Interactive Systems* (Edinburgh, United Kingdom) (DIS '17). Association for Computing Machinery, New York, NY, USA, 567–579.

## **SUPPLEMENTARY MATERIALS FOR SIG SUBMISSION – “FUTURE DIALOGUES: PERSONAL AI ASSISTANTS AND THEIR INTERACTIONS WITH US AND EACH OTHER”**

### **Communities of Interest**

The themes and concepts that cut across the concerns we will discuss in this SIG are relevant and timely for scholars who are interested in computer-mediated communication, the role of technology in interpersonal relationships, collaboration technologies, and artificial intelligence in general. Design, ethics, and policy perspectives within each of these areas are particularly important, and will help to draw a broader cohort of audience participants.

### **Assumed Attendee Background**

Our primary attendees are likely to be scholars and practitioners whose work intersects with communication and collaboration. Through our posts on social media and the postcards prompts we will create to advertise the SIG, we will specifically encourage researchers who study interpersonal communication and technology mediated relationships to attend. Attendees will not be expected to have a technical understanding of how AI agents work, and the focus on the *role* of PAIAs, rather than the functioning of PAIAs, will be emphasized in all of our communication about this SIG.

### **Organizing Approach**

Our approach to fostering deep and meaningful discussion among diverse attendees begins with a short introduction to key concepts through a presentation of design fictions, sci-fi summaries, and brief case studies of technologies that envision future PAIA capabilities. The SIG authors will present a small selection of their own design fictions that exemplify the AI agent tensions discuss above. Sci-fi summary examples include, but are not limited to: discussing how Jarvis in Iron Man mediates Tony Stark’s relationships with other characters; describing the impact of the surveillance possible through the Internet-like system in Benjamin Rosenbaum’s *The Unraveling* on Fift’s 9 parents; or speculating about the new interdependencies opened up by the many automated algorithms described in Ruthanna Emrys’ *A Half-Built Garden*. Case studies will be curated from current events taking place within a month of the conference. This variety of examples will stimulate participants to consider how their own research contexts or questions intersect with the potential achievements or harms of future PAIA technologies.

Following this introduction, we will present schemas and prompts as conceptual tools to ignite discussion within small groups. We have intentionally chosen the small group discussion format to create an inclusive and comfortable environment, particularly for junior scholars who may feel hesitant to speak out in larger settings. This format not only encourages the participation of less experienced researchers but also facilitates meaningful interactions between junior and established scholars. By organizing groups based on shared interests in the prompts rather than preexisting relationships, we aim to promote new connections and collaborations within the community.

To broaden the accessibility of our SIG, we have considered a few baseline accommodations. However, we are also eager to work with any prospective SIG participant to discuss additional accommodation strategies. We will use Zoom’s automated captions to provide subtitles that can be seen by our in-person attendees, as well as Zoom’s automatic transcription to provide a text representation of our SIG discussions to our participants afterward.

### **Informal Schedule**

We will begin with 10 minutes to present the main concepts and examples (design fictions, sci-fi summaries, and short case studies). Then we will spend 5-10 minutes presenting the schemas and prompt questions. The audience participants will have 5 minutes to organize (with our facilitation) into discussion groups based on the prompt questions or, if they choose, themes that cut across multiple prompt questions. The discussions in these small groups will take 25 to 35 minutes, and we will use 10 to 15 minutes to discuss highlights and wrap up the session. The final 10 minutes will be reserved for allowing participants to continue their conversations, make further plans, and share contact information.

### **Recruitment and Attraction Plan**

In addition to each of the authors advertising this SIG to their networks, we will use postcards that include provocations in the form of prompts and design fictions. These postcards, which will highlight the time, date, and room of the event, will be placed on discussion tables during coffee breaks, as well as handed out to conference attendees during conversations throughout the conference.

### **Primary Contact**

Austin Toombs, [altoombs@iu.edu](mailto:altoombs@iu.edu), is the primary contact for this submission.