Designing AI Personalities: Enhancing Human-Agent Interaction Through Thoughtful Persona Design

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Abstract

In the rapidly evolving field of artificial intelligence (AI) agents, designing the agent's characteristics is crucial for shaping user experience. This workshop aims to establish a research community focused on AI agent persona design for various contexts, such as in-car assistants, educational tools, and smart home environments. We will explore critical aspects of persona design, such as voice, embodiment, and demographics, and their impact on user satisfaction and engagement. Through discussions and hands-on activities, we aim to propose practices and standards that enhance the ecological validity of agent personas. Topics include the design of conversational interfaces, the influence of agent personas on user experience, and approaches for creating contextually appropriate AI agents. This workshop will provide a platform for building a community dedicated to developing AI agent personas that better fit diverse, everyday interactions.

CCS Concepts

• **Human-centered computing** → **HCI theory, concepts and models**; **HCI design and evaluation methods**; **Natural language interfaces**.

Keywords

conversational user interfaces, AI Agents, Personas, Speech Interfaces, Conversational Agents

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1 Theme and Goals

As artificial intelligence (AI) agents become increasingly integrated into interfaces in a dialogue-based manner via both text and voice, their role in human-computer interaction (HCI) has become more crucial [4]. Virtual agents (VAs) are software programs designed to assist users by completing tasks, answering queries, or providing information [36]. AI agents are a subset of virtual assistants that employ AI techniques to understand, learn from, and adapt to user preferences over time [33]. They can range from simple rule-based systems to complex, learning-based models, depending on the tasks they are designed to perform. Examples of AI agents include Siri, Google Assistant, Alexa, and ChatGPT. The interfaces that allow users to interact with an agent using natural language through text or voice are referred to as Conversational User Interfaces (CUIs) [29]. The growing popularity of these interfaces is largely driven by advances in natural language processing capabilities [15]. While much of the research in this area has focused on improving system efficiency and accuracy [1, 38], it is equally important to consider the appearance and representation of AI agents. Mismatch in user expectations and agent's presentation could result in infrequent use and eventually un-use [8, 9, 35]. Yuksel et al. suggest that an agent's visual appeal may be more critical to user satisfaction than its reliability [37]. Similarly, Lopatovska et al. [23] emphasize that, depending on the task, a positive user experience (UX) may take precedence over the accuracy of outcomes. Additionally, Desai et al. [7] found that the choice of persona also affects the perceived trust, likeability, and intention to adopt. This highlights that users' engagement, satisfaction, and even trust are influenced not only by the technical performance of AI systems but also by the broader interaction process, including the agent's persona and presentation.

There is a common misconception that the representation of AI agents is a superficial aspect, seemingly detached from the core components that significantly contribute to the system's effectiveness and user acceptance [22, 37]. However, this view is shifting. With the proliferation of AI agents, particularly in homes and smartphones, research into the persona and representation dimension of such agents has been expanding. Studies suggest that many

conversational agents fail to meet user expectations as effective interlocutors [11, 12, 21, 24, 31, 40]. A potential contributing factor to this shortfall is the insufficient emphasis placed on the representation of these entities as engaging conversation partners. Agents like Amazon Alexa and Google Home serve complex roles, from financial advisors to health coaches, facilitating tasks that significantly impact users' daily lives [6, 7, 14]. Despite rapid advancements in speech technology and its widespread commercial deployment, research into the design of these agent and their implications for users remains limited [34]. This scarcity of studies contributes to inconsistencies in the development and evaluation of system personas [5, 30]. These personas are often assessed through interactive user studies, conducted both online and in laboratory settings, yet lack uniform standards and methodologies. Moreover, with the growing popularity of ChatGPT, users can choose personas to interact with, including those modeled after celebrities like Tom Brady and Snoop Dogg [26]. Additionally, they can craft personalized personas using prompt engineering techniques. These design choices raise ethical concerns, particularly due to their potential to reinforce and perpetuate stereotypes [20].

To address these challenges, this workshop will convene interdisciplinary experts to refine how AI agent personas are crafted. The goal is to enhance design practices and increase the ecological validity of these systems. Throughout the workshop, through interactive demonstrations, vibrant group discussions, and hands-on prototyping activities, we will explore key questions tailored to the creation of effective and engaging personas, such as:

- *How can we design appropriate AI agent personas based on the context of use?*
- *What ethical and sociotechnical challenges arise from the design choices of AI agent personas??*

We encourage collaboration between academia and industry and welcome participation from anyone interested in conversational user interface design, development, and evaluation. By bringing the interdisciplinary community together, we aim to provide insights on how to improve the development of AI agent personas tailored to specific applications and ensure higher ecological validity in their task-based evaluation.

2 Organisers

This workshop is organized by a team of experienced researchers with expertise spanning diverse fields aligned with our objectives. The organizers have a strong record of publications in areas such as conversational user interfaces [13, 16, 17, 27, 28, 32, 41, 42], human-robot interaction [25], multi-modal communication [2, 3], and agent persona design [39]. By bringing together these disciplines, the workshop aims to foster collaboration among participants from various backgrounds, bridging gaps between these research areas and promoting transdisciplinary innovation.
Multiple successful workshops were held between the organizers at HCI conferences, such as HRI'23 [25], CUI'23 [2], CUI'24 [15], and CHI'24 [10, 18], to give important topics a platform for discourse, including conversational user interfaces, ethical design, and dark patterns.

Nima Zargham is a postdoctoral researcher in the Digital Media Lab at the University of Bremen. His research focuses on human-centered approaches for designing speech-based systems that elicit desirable user experiences. Nima has previously organized CUI-related workshops at notable conferences such as ACM/IEEE HRI 2023, ACM CUI 2023, ACM CUI 2024, and ACM CHI 24. Additionally, he served as a local chair at the ACM CHI-PLAY 2022 conference. His research efforts have resulted in publications featured in prestigious HCI venues, including CHI, CUI, and CHI-PLAY.

Mateusz Dubiel is a research associate in the Department of Computer Science at the University of Luxembourg, where he works on developing and evaluating conversational agents. Specifically, his current research focuses on assessing the cognitive and usability implications of interfaces that feature speech and exploring their potential to inspire positive behavioral change in users. He served as Short Papers Chair for CUI '22 and was one of the General Chairs for CUI '24.

Smit Desai is a postdoctoral researcher in the College of Art, Media and Design at the Northeastern University, Boston. His primary research focus centers around comprehending the mental models of users as they engage with conversational agents, utilizing innovative research techniques such as metaphor analysis. He leverages this valuable insight to advance the development of conversational agents in diverse social roles, including educators and storytellers. His research has yielded publications in esteemed HCI forums like CHI, TOCHI, CSCW, and CUI.

Thomas Mildner is a postdoctoral researcher at the Digital Media Lab at the University of Bremen. His research focuses on ethical and responsible design and online wellbeing with studies exploring so-called dark patterns in social media as well as conversational technologies. To this end, Thomas collaborated to develop an ontology for dark patterns [19]. His research is published in venues including CHI, DIS, and CUI.

Hans-Joachim Belz is a freelance user researcher and designer with over 30 years of experience designing, implementing, and managing digital products across various industries. From 2014 to 2024, he held a teaching position in "Mobile Commerce" at DHBW Mannheim (Baden-Wuerttemberg Cooperative State University). In 2020, his focus shifted to voice automation. In addition to his consultancy work in conversational AI, he employs Ethnomethodology and Conversation Analysis (EMCA) to study the expanding conversational capabilities of voice and multimodal user interfaces.

3 Format and Advertisement

This workshop seeks to connect individuals from academia and industry to engage in cross-disciplinary dialogue. We invite participants from different Human-Computer Interaction (HCI) communities, including but not limited to human-agent interaction, human-robot interaction, conversational user interfaces, and user experience design. To reach potential participants, we will issue a Call for Participation through several channels, including popular social media platforms (e.g., X, Facebook, LinkedIn) and relevant

mailing lists. Additionally, we will directly invite researchers who have published in related fields within HCI.

The workshop will be held exclusively in person. Based on previous experiences, we expect to host between 7 to 15 attendees and receive 4 to 6 position papers. A dedicated workshop website will be established to provide information about the call, key dates, and other details for prospective participants. Accepted submissions will be posted on this site before the workshop and archived afterwards. Applicants are invited to submit position papers of 2–4 pages, presenting their work or discussing innovative ideas related to AI agent persona design and evaluation. We encourage submissions on research in progress, preliminary results for community discussion, methodology proposals, and insights gained from designing AI agents for users. All submissions will be reviewed independently by at least two workshop organizers before acceptance. We also welcome expressions of interest from those who may not have formal papers but wish to contribute to the workshop. Statements of interest should highlight relevant experience, perspectives, or ideas related to AI persona design.

4 Schedule and Workshop Activities

The tentative schedule and workshop activities are outlined below. Given our workshop's focus on synthesizing insights from experts across various communities and translating them into practical recommendations for persona design and evaluation, we will allocate ample time for prototyping activities, discussions, and participant interactions.

- **Welcome and Introduction (30 mins):** We will begin with brief introductions from the organizers and participants, outlining the workshop's objectives and providing an overview of the day's agenda.
- **Keynote and Discussion (60 mins):** Our keynote address will be delivered by **Dr. Hannah Pelikan**. She is a Post-Doc in the Language, Culture, and Interaction division at Linköping University, working on the WASP-HS AI in Motion project with professors Barry Brown and Mathias Broth. Her work is located at the intersection of conversation analysis and interaction design. Her PhD thesis on sound design for robots was selected for presentation at the HRI Pioneers workshop, which gathers the world's top student researchers in Human-Robot Interaction. Hannah regularly speaks at popular science events such as Pint of Science and Forskarfredag, and her work has been featured in several press releases, including the Cornell Chronicle, Elektroniktidningen, and the University of Nottingham's 100 Ways to Change the World.
- **Coffee Break (15 mins)**
- **Introduction & Presentations (45 mins):** Each participant will have 3-5 minutes to introduce themselves and present their accepted paper. This will allow everyone to share their background, research focus, and key insights from their work.
- **Expressive AI Agent Persona Demonstration (45 mins):** The organizers will present a selection of AI agents, showcasing their personas and the design choices that shaped them. This presentation will set the stage for an open discussion, where participants can share their perspectives, critique the designs, and explore the implications of these choices on user experience and interaction.
- **Lunch (60 mins)**
- **Prototype activity (90 mins):** Participants will be divided into two or three small groups, each guided by a designated facilitator. Each group will be assigned a specific domain and context, such as designing an AI assistant for financial guidance or creating an agent as a social companion. The groups will start by identifying and listing the characteristics of their target audience, including their attitudes, needs, goals, and expectations. Following this, the groups will collaboratively design an agent persona, considering factors like voice, embodiment, and demographic characteristics. At the end of the session, each group will present their designed persona, discuss the rationale behind their design choices, and receive feedback from the broader audience.
- **Coffee Break (15 mins)**
- **Closing (45 mins):** The workshop will conclude with the organizers summarizing key insights from the sessions. This will be followed by a collaborative reflection, where both participants and organizers will work together to identify concrete research topics and potential outcomes. This session will also explore future research directions and strategies for upcoming venues and workshops, incorporating participants' feedback and perspectives.

5 Plans to Publish Workshop Material

The primary goal of this workshop is to promote collaboration among individuals from diverse backgrounds and perspectives who are interested in designing and evaluating AI agent personalities. All accepted submissions from participants will be published on our workshop's website to ensure broad dissemination of the findings. A selection of the accepted papers will be included in the workshop proceedings, which we plan to publish on platforms such as *arXiv* [1] or *ceur-ws* [2]. Moreover, we aim to synthesize the workshop's results into a refined publication for a relevant venue, such as CUI 2025[3]. Key ideas and discussion points will be documented on an open online platform during and after the workshop. Participants will be encouraged to engage in future collaborative projects that arise from the discussions.

6 Call For Participation

In the rapidly evolving field of artificial intelligence agents, the design and representation of AI agent personas are crucial to shaping user interactions and experiences. Our workshop aims to bring together experts from diverse disciplines to explore and discuss the design of AI agent personas across various contexts, such as in-car assistants, educational support tools, and smart home environments.

Join us for a full-day in-person workshop to advance the discourse on AI gent personas and representations. We invite participants from both academia and industry to engage in critical

[1] https://arxiv.org/
[2] https://ceur-ws.org/
[3] https://cui.acm.org

discussions about conversational user interfaces (CUIs) and the development of design guidelines to enhance interaction quality.

We encourage the submission of position papers (2–4 pages in ACM single-column format, including references) that present research findings, innovative ideas, and work-in-progress related to AI agent persona design. Topics of interest include, but are not limited to:

- AI Agent Representations
- Embodied Conversational Agents
- Ethical Dimension in CUI Persona Design
- Multimodal AI Agents
- Persona Prompting

All submissions will undergo review by at least two workshop organizers. Papers will be selected based on their quality, relevance to the workshop topics, and diversity of perspectives. Please note that at least one author of each accepted submission must attend the workshop. Key details can be found below:

- Submission deadline: 7th of November, 2024
- Acceptance Notification: 18th of November, 2024
- Send position papers to: **cui.research.hub@gmail.com**
- Website: https://thomasmildner.github.io/DAIP
- Date and time: 1st of December, 9:00 a.m. - 16:00 p.m. (UTC+2)

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