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Between Trust and Identity: Form, Function, and Presentation

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ABSTRACT

As conversational user interfaces (CUIs) evolve, trust and identity challenges become increasingly pronounced. The identities of CUIs are multifaceted, incorporating individual names like Siri or Alexa, the companies behind them like Apple or Amazon, and various attributes, e.g., race, gender, and class, as perceived by people and/or as designed into these CUIs. Identity is also encoded in the embodiment, be it as an abstract animation on a watch, an avatar in virtual reality, or a humanoid robot, as well as in the backstory designers give these agents. But, if identity is fragmented, e.g., across multiple physical forms, if and how users can establish trust becomes difficult to address. Drawing from diverse fields including ethics, design, and engineering, we explore the hurdles posed by ambiguous identities. A dynamic embodiment of a CUI across multiple devices presents technical complexities, and importantly, it raises ethical dilemmas surrounding trust. In this workshop, we aim to synthesize research goals and methods to further probe the intricacies of identity fragmentation and its implications for user trust in CUIs. To pursue a collaborative debate, we formulate that trust and identity suffer from the chicken or egg dilemma; should issues surrounding identity be resolved first before trust can even be conceived to be possible between humans and CUIs? Can users truly trust a CUI that lacks a consistent and transparent identity, and would that trust be different for different embodiments and platforms? We consider that trust itself perhaps should be questioned given that the issues surrounding identity are not resolved. We additionally discuss whether a uniform identity across all interfaces is conducive to user trust, or whether the adoption of distinct personas on disparate platforms is more effective in engendering user trust.

CCS CONCEPTS

 \bullet Human-centered computing \rightarrow HCI theory, concepts and models.

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KEYWORDS

Artificial identity, multi-embodiment, embodiment, migratable AI

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1 BACKGROUND

We aim to deepen our understanding of the intricate interplay between identity formation and fragmentation, trust dynamics, and ethical considerations. Our workshop focuses on the tension between trust and the identity of who or what we trust. This can be the diverse groups of people who use CUIs, CUIs themselves, in whatever form(s), and organizations and companies behind CUIs. We build on this year's theme of the conference, i.e., Trustworthy Conversational Agents, and introduce identity as a crucial consideration. At HRI (ACM/IEEE International Conference on Human-Robot Interaction), we have led three workshops on identity [9–11] exploring the challenges surrounding this topic as noted as ongoing and future research agendas [4, 19]. These issues are also relevant for the CUI community. The prior discussion on artificial identity or robo-identity at HRI were across disciplines, with engineers, computer scientists, designers, and philosophers as organizers and attendees of the robo-identity workshop series. We considered the possibility of multiple embodiments, such as how the physical form is not a limitation for artificially created identities. Beyond this, groups of robots, e.g., swarms, can also form what is called group identity observables like sharing the same voice [3]. Identity can also be conveyed via speech and voice; synthetic voice is one example that demonstrated the difficulty in distinguishing between human or artificial identity [17] and voice design influences people's likelihood of trusting an agent [30]. Recent discussions center on identity fluidity in a shared world between humans and machines, such as how both human and non-human identities continuously evolve [9].

1.1 Identity and CUIs

For the CUI community, the inquiry into "who" these interfaces represent also is relevant, yet has not been of focus. CUIs do not rely on (but can have) tangible bodies of robots, in which there is a spectrum of forms, ranging from standardized humanoid avatars to abstract digital entities such as Siri or Jibo. How diverse identities that may or may not rely on physical bodies could seamlessly traverse across different technological platforms becomes compelling to explore.

Already human identity has been discussed at length in philosophy [13, 24] and psychology [29], with normative assumptions like the lack of consistent human identity being related to psychiatric disorders such as dissociative identity disorder [31]. Technology, on the other hand, is not seen as "disordered" if its identity is distributed across multiple embodiments, e.g., Siri on a smartwatch and the iPhone. Numerous challenges persist, including optimal contexts for identity migration and the nuanced perception of migrating artificial identities across diverse user contexts [6, 14, 16, 25]. Further, in designing identity-related traits, it is questionable whether or not human-like features should be purposefully put into robots, such as race [34], especially considering that robots can serve as proxies for human identity[2].

1.2 Trust

Trust is the disposition to rely on another entity to deliver an expected action; it is assessed by risks related to the action and judging if the entity at hand is worthy of trust [23]. Hence, an agent that can transparently let humans know what action it is taking and why it is taking that action is seen as trustworthy, especially in collaboration with humans [1, 12, 18, 20]. Thus, CUIs can make use of various modalities, be it visuals, text, or voice, to provide explanations [5, 8, 15, 32]. Yet, tension ensues when people over- or under-trust CUIs, be it over-relying on them when people should rely on themselves or other humans, or doubting agents when they should trust the information the agents share [26, 28]. In this, people's states (emotional and cognitive) are involved in trust within an interaction [21, 22], but trust has also been called a takenfor-granted given that is required for any social exchange to happen in the first place [7, 33]. When trust is there socially, it is rarely noticed, yet when it is gone, its absence is glaringly obvious.

Taken together, CUIs can have physical, virtual, augmented, and multiple bodies, as well as diverse modalities (like changing voice) [4]. Hence, an agent's identity in all its possibilities challenges if and how we should trust it. Thus, during the workshop, we look into explicitly fostering constructive disagreements and shared debates on trust and identity. The topics covered by attendees include positions on whether or not identity issues need to be resolved before trust in CUIs is possible, compared to positions on how trust can stand alone on its own conceptually despite the issues regarding identity looming large.

2 ORGANIZERS

Minha Lee is an assistant professor at the Eindhoven University of Technology in the Department of Industrial Design, with a background in philosophy, digital arts, and HCI. Her research concerns morally relevant interactions with various agents like robots or chatbots. Her recent work explores how we can explore our moral self-identity through conversations with digital entities, e.g., via acting compassionately towards a chatbot.

Donald McMillan is an Assistant Professor at Stockholm University's Department of Computer and Systems Sciences. His research lies at the juncture between CUI, HCI and computer science in investigating how observational methods that provide detailed perspectives on human communication can be applied to improve sensing and interaction with novel devices.

Illaria Torre is an Assistant Professor at Chalmers University of Technology, Division of Interaction Design and Software Engineering. Her research focuses on Human-Robot Interaction, looking particularly at developing effective and appropriate communication methods for intentional and unintentional human-robot interactions.

Joel Fischer is a Professor of Human-Computer Interaction at the University of Nottingham, UK. His research takes a human-centered view on AI-infused technologies to understand and support human activities and reasoning. He has co-organized international workshops and published widely on related topics spanning robotics and conversational systems, frequently drawing on perspectives from Ethnomethodology and Conversation Analysis.

Yvon Ruitenburg is a PhD candidate at the Department of Industrial Design at Eindhoven University of Technology with a background in Industrial Design. Her research delves into how conversational technologies can help people with dementia and those around them communicate their perceptions of reality.

3 WORKSHOP PLANNING AND OUTCOMES

The organizers have a wealth of experience in running successful workshops on a number of topics and at a range of conferences, e.g., CHI, HRI, CUI, and more. Drawing on this collective experience, we aim to run a **half-day** workshop that focuses on *sparking ideas* and *developing connections* that not only results in continued conversations at the main CUI conference, but also result in long-lasting, fruitful research collaborations.

3.1 Target Audience & Recruitment

The primary audience of the workshop includes researchers in the fields of HRI, CUI, and RoboPhilosophy. Beyond those working in the CUI space, we hope to involve researchers in design research, psychology, and other related fields. By doing so, we hope to bring various disciplines together in discussions during the workshop on the overlapping interests in identity and trust. We also aim to broaden the topics covered at the CUI conference, to make long-lasting and meaningful connections between our growing community members. The workshop is open and inclusive to all participants from varying fields.

The call for participation for this workshop is on our dedicated website and spread via mailing lists covering multiple disciplines, and social media (e.g., LinkedIn, Twitter). Additionally, relevant researchers within CUI, IMX, HRI, CHI and the social sciences are individually contacted and encouraged to submit a paper and/or participate in the workshop. Prospective participants are invited to submit 2 to 4 (maximum of 6 including references) page extended abstracts on research related to the topics described above.

We explicitly encourage position papers, papers describing works in progress, preliminary results to discuss with the community, methodology proposals, and lessons learned when designing CUIs to converse with end users. Submissions that address inclusivity in relation to trust and identity in conversational interfaces are encouraged.

Hence, we are mobilizing for a broader awareness of identity as a topic that may concern many groups of researchers. At the end of our workshop, we plan to have shared research questions and guiding thoughts as starting seeds of collaboration, e.g., for more elaborate position papers with co-authors from different disciplines. Currently, many researchers in RoboPhilosophy, HRI, design, and engineering implicitly deal with the problem of identity and multiembodiment, and our workshop will bring the topic of identity to a shared foreground at CUI.

3.2 Accessibility & Inclusion

Starting from the diverse, and gender-balanced, organizing team, this workshop aims to be an inclusive, safe, and supportive space for all participants to feel able to contribute. Submissions will be juried with an eye to the overall diversity of the participant group. The guided debates and discussions in small groups as outlined above, as opposed to plenary discussions, provide more support and opportunity for participation. Organizers will monitor and participate in these discussions, ensuring that quieter participants are encouraged to engage with the topic and that more extroverted are encouraged to cede the floor and solicit others' opinions.

3.3 Schedule of activities planned

During this **Half-Day Workshop**, we plan to explore divergent and convergent themes of trust and identity of CUIs with the following activities, formulated as debates [27].

- 1:00–1:15 Introduction and agenda 15 min
- 1:15-1:45 Paired debates part one with organizers going first:
 - The chicken or the egg dilemma on trust and identity
- 1:45-2:45 Paired debates part two with attendees: The chicken or the egg dilemma on trust and identity Coffee Break
- 3:00-3:30 Nordic Perspectives on Algorithm Systems
- 3:30-4:30 Conver-Stations Discussion
- 4:30-5:00 Reporting back and Future steps
- 7:30-late Informal Workshop Dinner

Our goal is to bridge gaps between relevant disciplines in order for identity and trust as intertwined topics to be treated in multifaceted ways. Since we expect early ideas on identity rather than fully developed works, we ask authors to present their position (regarding what comes first on trust vs. identity as the chicken or egg problem) in PechaKucha style¹. Specifically, we request 10 slides with a maximum of 20 seconds per slide (though this is a recommendation rather than a strict requirement). The presenters then can do a rebuttal. As shown in the schedule, the organizers first do a debate before opening it up to attendees, who will be paired

The Nordic Perspectives card deck are used to generate scenarios of research into changing trust and identity. In small groups, participants use the Settings and Metaphors sets to develop simple interaction scenarios that exemplify interactions on this topic. The groups will then combine, sharing two scenarios and working together to add two research plans using the Method and Caveat decks. This encourages generative discussion on the range of challenges involved in the development and research of CUIs with respect to the trust in their identities.

The Conver-Stations exercise involves participants moving between tables, with 10 minutes for discussion at each. These stations are pre-populated with topics taken from the submitted position papers of the participants. These large sheets of paper also include two to three related questions that each group should answer in one sentence during their discussion before moving on, reading the previous answers on their next station, and starting a new discussion on a new topic.

These two generative and discussion-based activities are used to ensure that participants are able to talk together during the workshop. The final session on reporting back and future steps focuses on sharing connections that have been made, and potential future work – from follow-up discussions, to papers, to research funding proposals – that they want to continue with after the workshop.

3.4 Post-Workshop Dissemination

We aim to record the main innovative ideas and talking points during the workshop and interested participants are invited to join to encourage future collaboration on related articles or funding proposals. We follow up the workshop with a journal special issue for extended versions of selected workshop papers and new contributions.

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based on their position papers. The hope is in sharing authors' debates on identity, we can inspire co-attendees in an easily accessible manner. Then, we will have *synthesis* oriented discussions with the generative Nordic Perspectives on Algorithm Systems Exercise exercise² and through rotating small-group discussions as part of the Conver-Stations exercise.

¹https://www.pechakucha.com/

 $^{^2} https://doi.org/10.17045/sthlmuni.21989093$

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