CUI – Conversational User Interfaces:
A Workshop on New Theoretical and Methodological Perspectives for Researching Speech-based Conversational Interactions

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ABSTRACT

The use of speech as an interaction modality has grown considerably through the integration of Intelligent Personal Assistants (IPAs- e.g. Siri, Google Assistant) into smartphones and voice based devices (e.g. Amazon Echo). Such engineering advances in speech processing present a unique opportunity for enabling users to interact with interface in a truly conversational way. However, we have yet to see current voice-enable interface fully becoming Conversational User Interfaces (CUIs) as afforded by the underlying speech and natural language capabilities. For example, from a conversational / dialogue perspective, there remain significant gaps in using theoretical frameworks to understand user behaviours and choices and how they may applied to specific speech interface interactions. On a design and Human-Computer Interaction level, we don't yet have the proper tools such as validated design guidelines to help us improve the usability of such interfaces. On the speech processing side, variability in speech, language, and conversation still pose problem, and error-recovery strategies often lead to degraded user experience. From a critical perspective, issues of ethics and privacy remain yet to be addressed.

CCS CONCEPTS

• Human-centered computing • Human computer interaction (HCI) • Interaction paradigms • Natural language interfaces

KEYWORDS

Conversational User Interfaces

1 Description

This part-day multidisciplinary workshop aims to critically map out and evaluate theoretical frameworks and methodological approaches across a number of disciplines and establish directions for new paradigms in understanding speech interface user behaviour. In doing so, we will bring together participants from HCI and other speech related domains to establish a cohesive, diverse and collaborative community of researchers from academia and industry with interest in exploring theoretical and methodological issues in the field.

2 Previous history

The workshop has been held annually at several SIGCHI conferences (primarily CHI and MobileHCI) since 2014. The topic has varied over the years, starting with "Designing Speech and Language Interactions" (first time at CHI 2013, last time at MobileHCI 2018), and more recently focusing on the Theoretical and Methodological Perspectives on Speech Interactions (CHI 2019). Due to the increased interest in this, we have recently organized a small conference (Conversational User Interfaces – CUI) in Dublin in August 2019, that continued the momentum from these workshops.

Given that IUI is one of the few SIGCHI conferences that manages to blend Artificial Intelligence and Human-Computer Interaction, we consider that a workshop on one of the "hottest" topics at the intersection of these areas (voice-based conversational interactions) would present a great opportunity for creating new cross-disciplinary collaborations and for growing our communities.

3 Organizers and Committee

The key organizers are listed as authors of this proposal, and they are part of the newly-formed CUI Steering Committee. Over the previous years (and for the CUI 2019 conference) we were priviledged to benefit from a growing community from which we could draw members of the program committee. We are confident that we can continue doing so, should this workshop be held at IUI.

4 Participants

Our workshop aims to bring together 20 to 25 world-leading researchers and industry representatives from a broad range of communities related to speech, dialogue, human-machine interaction, speech interface design and voice UX to bring a multidisciplinary approach in solving these issues. Through engaging across these communities, we aim to highlight the relevance and broaden the reach of speech interface work at IUI and within HCI in general to other research communities (e.g. speech technology, linguistics, dialogue research, cognitive sciences), whilst also building a collaborative, diverse and cross-disciplinary conversational interaction community that is strongly connected to IUI.

We had over 60 participants at the recent CUI event in Dublin, and 25 participants at our recent CHI 2019 workshop. We are thus confident that we will be able to attract similar levels of interest at IUI. We will continue championing this research space and inviting participants through the usual channels (conference announcements, social media, mailing lists).

5 Workshop format

We propose a hybrid workshop / mini-conference model. We will invite submissions of short papers (similar to the late-breaking work), as well as original long papers, both categories being reviewed by three reviewers. Successful short papers will be invited to be developed in full-length papers for future CUI conferences, while long papers will be fast-tracked for reviewing for the next CUI conference (akin to a "major revisions" cycle at a journal, thus still ensuring additional double-anonymous reviewing).

In addition to papers, we will invite the submission of one-page position statements for participants who wish to join the workshop without submitting a paper. In our past experiences we have found that this option is particularly attractive to industry-based researchers.

The workshop will consist of a mix of paper presentations (limited in time), short position statements (lightning presentations or "provocations"), and round table discussions on topics emerging from the presented papers and provocations. We have employed this model successfully at most of our previous workshops and events.

6 Planned outcomes

After the workshop, we aim to:
(1) Organise a special issue in the journal Human-Computer Interaction where participants will be encouraged to submit their work.
(2) Plan to organise further workshops on this topic targeting the annual Interspeech, SIGDIAL, CogSci, CHI, and IUI conferences.
(3) Continue engaging with the IUI community in meaningfully growing the topic of voice-based conversational interaction.