Voice Interaction Design

The Journal of AVIxD Association for Voice Interaction Design

Vol. 1, Issue 2, November 2016 pp. 1-2

Editorial: Advancing Voice Interaction Design

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Many voice interaction designers currently share a pervasive sense that things are about to change in a major way in the world of speech technologies. Change feels imminent to veteran voice designers because we are at a moment of convergence in which the marketplace, underlying theoretical approaches, and user expectations for speech technologies are shifting simultaneously.

The factors contributing to the change are not orthogonal, and have overt and subtle influences on each other. The improvements in performance attributable to changes in theoretical models and implementations have to some extent created the expanded marketplace for speech—because speech technologies work better, more companies start exploring ways to use them. New applications of speech are also more palatable to companies because the general public has increased familiarity and comfort with speech, and with technology in general. How did users build up this baseline familiarity with speech? By trying new speech applications available in the marketplace.

My point is not to discover a root cause, but to discuss the impact that this convergence of factors has for the profession of voice interaction design and its practitioners. Voice-enabled interfaces increasingly appear outside the context of much-derided IVR (interactive voice response) systems, on devices and platforms that people use willingly, sometimes with great enthusiasm. Designing for emerging ubiquitous voice contexts requires us to rethink existing techniques and philosophies that underlie our practice of voice interaction design today.

The 2016 AVIxD (Association for Voice Interaction Design, www.avixd.org) Workshop represents an initial exploration of the impact of the changing speech technology ecosystem on voice interaction design. The specific aim of the workshop was to revise and amend voice interaction design guidelines for emerging conversational user interfaces, using the current AVIxD Design Guidelines Wiki as a starting point (http://videsign.wikispaces.com/.) Discussions at the workshop ranged well beyond this topic and raised fundamental questions regarding what we do and don't know about designing conversational user interfaces. Participants at the workshop identified a broad variety of issues facing our professional community:

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- What counts as a conversational interface, and how do we classify different types of conversational UIs?
- What is the role of speech in relation to other modalities such as visual and haptic?
- What is the impact of hardware technologies on conversational UIs?
- Which contexts and domains are best suited to conversational UIs?
- How universal are existing VUI design guidelines? How specific do guidelines need to be in order to be relevant for different contexts of use?
- What does the public expect and want from conversational UIs?

The output of the workshop was not solutions, but a set of questions that frame fundamental issues facing the VIxD community. Refining, prioritizing, and delving into the details of these questions will occupy the AVIxD Design Guidelines Working Group for a number of years, and I encourage journal readers to join us in this task.

The issue that most intrigues me is the changes we are beginning to see in user expectations for newer conversational interfaces that exist on mobile phones, devices in the home, and automobiles in contrast to their expectations regarding IVR speech interfaces. A fundamental difference between the two is that users know that there is always a human being "behind" the IVR. Veteran voice interaction designers are familiar with the subset of users who will do anything to force the IVR to transfer them to a human, including failing to respond and deliberately invoking error conditions. We describe these users as "unwilling to play" and recognize that sometimes, their impatience with IVRs is justified because the automated system fails to meet their specific needs.

If Siri or Alexa or one's car fails to meet user needs, what is the user's recourse? Users may not understand the technology that underlies speech interactions in these cases, but they do not have the same sense that a human being is waiting behind the scenes if the technology fails. Instead, users must accept these technologies as they stand, as autonomous interlocutors that they must deal with in spite of their failings. I look forward to discovering the ways in which changing expectations, and developments in speech recognition, natural language understanding, and dialogue models change the way users interact with new speech-enabled systems.

As the speech technology market moves forward, more designers will be directly working on voice interaction design in novel conversational contexts. New design techniques and philosophies will no doubt affect the way we approach VIxD in "traditional" contexts like IVR as well. I believe that these issues are the most significant factors affecting our profession over the next decade. I invite you to contribute to the advancement of voice interaction design principles and practice by joining AVIxD and the Design Guidelines Working Group and, when you can, publishing your research in this journal.

About the Author

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Susan is the Past President and founding Board Member of AVIxD, and a member of the journal committee. She owns consulting firm SpeechUsability.