Human-Computer Interaction and Automatic Text Simplification: Understanding the Perspective of Deaf and Hard of Hearing Users

Matt Huenerfauth

Rochester Institute of Technology

Abstract

While there have been major advances in automatic text simplification and other related natural language processing technologies, there has been much less research conducted with direct participation of users, to understand their needs for this technology nor how it can be best evaluated through their participation in studies. In this talk, I will discuss how research methods from human-computer interaction and computing accessibility for people with disabilities can illuminate the potential benefits of this technology for a specific user group who has been the focus of research at our laboratory: Deaf and Hard of Hearing adult readers. In prior research presented at the ACM CHI and ASSETS conferences, we have learned that reading-assistance tools that incorporate lexical simplification benefit DHH adult readers, and we have also found that these users prefer designs in which they have greater autonomy over which portions of text have been simplified and transparency as to whether text has been modified. Focusing specifically on DHH adults working in the computing and information technology professions, we have also conducted research on users' current reading practices, approaches they use when encountering difficult text, their interest in reading-assistance technologies, and specific design considerations that would affect their interest (e.g., sense of autonomy, privacy, or social acceptability of this technology in the workplace). Finally, our most recent work has been methodological in nature, in which we have identified specific types of questions that can be asked in studies with DHH adults, of various English literacy levels, to effectively measure the complexity and fluency of English texts that have been simplified. Beyond our specific findings for DHH readers, our work illustrates how human-computer interaction researchers can contribute to progress in the field of automatic text simplification and provide useful guidance and methodological tools for other researchers.

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