

Thinking inside of the box – Exploring Research methods in HRI during a Global Pandemic

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The embodied nature of human-robot interactions and the extent to which contextual factors impact them makes it difficult to obtain meaningful input regarding the user experience of interacting with a robot. In-person user studies are the most common methods of obtaining feedback regarding people's perceptions of a robot and their experiences while interacting with it. However, these studies typically require participants to be in the same space as a moderator, which, as the COVID-19 pandemic highlighted, is not always possible. Many research efforts have shifted online, but it is unclear which aspects of human-robot interactions can be captured remotely.

In our research, we formally evaluated the use of online video-based surveys for eliciting user gestures and communicating robot failures, comparing results to those obtained during in-person evaluations. We also developed and explored two novel methods of investigation that allow HRI researchers to obtain meaningful feedback remotely while still enabling participants to interact with the robot in-person: 1) Bot-in-a-Box and 2) Bring Your Own Bot (BYOB). 'Bot-in-a-box' involved delivering an experimental kit to the participant's location or home, including an autonomous robot, instructions, and all necessary artifacts. The participants set up the environment and the robot according to the given instructions, then began a video-chat with a remote experimental moderator when they were ready to begin or if they had any questions. The moderator remotely guided the participants throughout the experiment until its completion, just as they would during a laboratory experiment. The 'BYOB' method involved distributing an online survey to existing users of domestic robots, requesting them to actively observe their own robot while performing various predefined tasks, record their experiences on video, and complete subsequent questionnaires online. The BYOB activity was unmoderated and could be completed at the participants' convenience. Preliminary investigations were performed to evaluate both methods. Additionally, we discovered the importance of personal relevance to obtaining meaningful user preferences and perceptions in laboratory experiments. Consequently, we formally investigated how to establish personal relevance in laboratory settings, and how to utilize mixed methods to identify methodological successes and failures. Insights regarding the various data collection methods used, including their strengths and limitations, will be presented, and discussed.

Short Bio

Shanee Honig received her bachelor's degree from Queen's University, Canada in Computer Science. She recently completed a combined Master's-to-PhD program in the Department of Industrial Engineering and Management at Ben-Gurion University of the Negev under the supervision of Prof. Tal Oron-Gilad. Her doctoral research topic focused on how to develop resilient robots that provide good service to nonexpert users when they fail.