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What was and what will be: What gestures are used in open-world task-based referential communication?

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Abstract

Gestures play a critical role in human-human and human-robot interaction. In task-based contexts, deictic gestures like pointing are particularly important for directing attention to task-relevant entities. While most work on task-based human-human and human-robot dialogue focuses on closed-world domains, recent research has begun to consider open-world tasks, where task-relevant objects may not be known to the hearer a priori. In open-world tasks, we argue that a more nuanced consideration of gesture is necessary, as interactants may use gestures that bridge traditional gesture categories, in order to navigate the open-world dimensions of their task environment. In this work, we explore the types of gestures used in open-world task contexts, and their frequencies of use. Our results suggest a need to rethink the way that gesture analysis is approached in the study of human-human and human-robot interaction.