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Cognitive Science Research Platform

Prof. Dr. Dr. Matthias Scheutz

Associate Professor at the Department of Computer Science
School of Engineering, Tufts University, USA

Steps towards embodied models of situated task-based natural language dialogues

Perception, action, and natural language understanding are all tightly intertwined in the human cognitive system, giving rise to complex patterns of actions, utterances, and responses. Different from written usages of natural language, meaningful linguistic fragments in situated spoken dialogues are typically determined by utterance and perceptual context together with prosodic, temporal, task, and goal information. Hence, one main challenge for computational models of human-like situated task-based dialogue interactions is to determine and extract meaningful linguistic fragments that are often not aligned with sentence boundaries. Moreover, computational models need to account for the fact that real dialogues are full of incomplete, ungrammatical, and ambiguous utterances without definite truth values.

In this talk, we will present results from human experiments that reveal the intricacies of human dialogue-based activity coordination in a joint remote search task. And we will show first results from our attempts to develop a complex, integrated robotic architecture that is based on findings in psycholinguistics about the nature of lexical, syntactic, semantic, and pragmatic processing to model situated task-based natural language interactions in humans.

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1010 Wien

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