Language to Action: Towards Interactive Task Learning with Physical Agents

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ABSTRACT
Language communication plays an important role in human learning and skill acquisition. With the emergence of a new generation of cognitive robots, empowering these physical agents to learn directly from human partners about the world and joint tasks becomes increasingly important. In this talk, I will share some recent work on interactive task learning where humans can teach physical agents new tasks through natural language communication and demonstration. I will give examples of language use in interactive task learning and discuss multiple levels of grounding that are critical in this process. I will demonstrate the importance of common-sense knowledge, particularly the acquisition of very basic physical causality knowledge, in grounding human language to actions not only perceived but also performed by the agent. As humans and agents often have mismatched capabilities and knowledge, I will highlight the role of collaboration in communicative grounding to mediate differences and strive for a common ground of joint representations.

KEYWORDS
Natural language processing; interactive task learning; human-robot communication

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