

Layering Physical and Social Interactions for Planning via Ontology

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Abstract

Robots with social skills and knowledge are requested to match our expectations at both the physical and the social levels. These expectations were fairly low ten years ago. After the more recent successes in the fields of AI and Robotics, expectations have raised considerably, and our communities are struggling to cope with the new demands. One problem is that the physical and the social worlds follow different sets of rules (and those in the latter set can be quite vague and context-sensitive), and yet remain strictly intertwined. Social interactions determine and regulate what humans do and communicate, they also coordinate how things should be done and talked about. Briefly put, today it is not enough to navigate and manipulate things in the world, these actions must be done in ways that match the social circumstances. Such interactions are usually only partially constrained, and require coping with unexpected or undesired situations.

Among the many problems we face in developing plans for social robots (e.g., starting from the acquisition and integration of needed social knowledge), in this talk we discuss different layers of knowledge to target functional and social disruptions that should be anticipated and evaluated in planning for social environments. These disruptions are traced back to core notions like capabilities, roles and proximity. We will introduce a simple use case to exemplify interaction procedures and disruptions' consequences, raising the problem of how to use this knowledge to manage disruptions in practice.


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