

Ready Team Player One: Social Robots in Teams

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ABSTRACT

Robots will become part of our daily lives. As they do, they should not just be able to carry out specific tasks but also to partner with us socially and collaboratively. In addition, groups of robots could be interacting with groups of humans in joint activities.

Yet, research related to groups of humans and robots is very limited. To make this happen we need a deeper understanding of how robots can interact socially in groups, how to identify and characterize other group members, evaluate the dependencies between the behaviours of different members; understand and consider different roles, and infer how the dynamics of group interactions led to a common past or build an anticipated future.

In this talk I will discuss how to engineer social behaviours for robots that autonomously act as members of a group in multi-player games, played by both humans and social robots. I will start by providing an overview of recent work in social human–robot teams, and will present different scenarios to illustrate the work. I will address the issue of how humans respond to such social features in robots that convey different roles, such as partners, opponents, tutors or peers. Motivated by psychological research I will describe some studies conducted with our autonomous social robots and discuss results associated with trust, engagement, emotions and roles.

I believe that by studying and engineering social interactions ‘for’ and ‘with’ robots in group settings, we will be building a new generation of natural, engaging, effective and, most importantly, ‘humane’ AI.

KEYWORDS

social robotics; human–robot interaction; affective computing

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BIOGRAPHY

Ana Paiva is a Full Professor in the Department of Computer Engineering at Instituto Superior Técnico (IST) from the University of Lisbon and is also the Coordinator of GAIPS – “Intelligent Agents and Synthetic Characters Group” at INESC-ID (see <http://gaips.inesc-id.pt>). Her group investigates the creation of complex systems using an agent-based approach, with a special focus on social agents. Prof. Paiva’s main research focuses on the problems and techniques for creating social agents that can simulate human-like behaviours, be transparent, natural and eventually, give the illusion of life. Over the years she has addressed this problem by engineering agents that exhibit specific social capabilities, including emotions, personality, culture, non-verbal behaviour, empathy, collaboration, and others. Her main contributions in the area of social agents have been in the field of embodied conversational agents, multi-agent systems, affective computing and social robotics.



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