From Misunderstanding to Cooperation: Understanding and Expressing Intentions Through Non-Verbal Actions

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ABSTRACT

Solving situations of misunderstanding requires two abilities: to build a coherent model of others in order to understand them, and to build a model of "me" perceived by others in order to be understood. Having an image of me seen by others requires two recursive orders of modeling, known in psychology as first and second orders of theory of mind. It becomes especially difficult to find an understanding when agents dont have a common language to communicate and have to learn and share each others intentions through their behaviors. In this paper, we present a cognitive architecture based on both Reinforcement Learning and Inverse Reinforcement Learning that aims to reach mutual understanding in multi-agent scenarios. We study different conditions of empathy that lead to cooperation in prisoner's dilemma.

CCS Concepts

•**Computing methodologies** → **Multi-agent systems;**

Keywords

AAMAS proceedings, LaTeX, text tagging

1. INTRODUCTION

2. MUTUAL MODELLING

3. EXPRESSING INTENTIONS

4. MODELS OF EMPATHY

5. RESULTS AND DISCUSSION

6. CONCLUSION

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