Combining Goal Inference and Natural-Language Dialogue for Human-Robot Joint Action

Abstract:
We demonstrate how combining the reasoning components from two existing systems designed for human-robot joint action produces an integrated system with greater capabilities than either of the individual systems. One of the systems supports primarily non-verbal interaction and uses dynamic neural fields to infer the user’s goals and to suggest appropriate system responses; the other emphasises natural-language interaction and uses a dialogue manager to process user input and select appropriate system responses. Combining these two methods of reasoning results in a robot that is able to coordinate its actions with those of the user while employing a wide range of verbal and non-verbal communicative actions.