

Preface

Intelligent systems or robots that interact with their environment by perceiving, acting, or communicating often face a challenge in how to bring these different concepts together. One of the main reasons for this challenge is the fact that the core concepts in perception, action and communication are typically studied by different communities: the computer vision, robotics, and natural language processing communities, among others, without much interchange between them. Learning systems that encompass perception, action and communication in a unified and principled way are still rare. As machine learning lies at the core of these communities, it can act as a unifying factor in bringing the communities closer together. Unifying these communities is highly important for understanding how state-of-the-art approaches from different disciplines can be combined (and applied) to form generally interactive intelligent systems.

The AAAI Machine Learning for Interactive Systems workshop, aims to bring researchers from multiple disciplines together that are in some way or another affected by the gap between perception, action and communication. Our goal is to provide a forum for interdisciplinary discussion that allows researchers to look at their work from new perspectives that go beyond their core community and develop new interdisciplinary collaborations, which target the advancement of interactive systems and robots in the real world.

This workshop contains papers with a strong relationship to interactive systems and robots in the following topics (in no particular order): robot learning from natural language interactions; robot learning from social multimodal interactions; robot learning using crowdsourcing; reinforcement learning with reward inference of conversational behaviors; reinforcement and neural learning to transfer learnt behaviors across tasks; learning from demonstration for human-robot interaction/collaboration; supervised learning for coaching physical skills; visually-aware reinforcement learning in unknown environments; Markov decision processes for adaptive interactions in video games; and Markov decision processes for grounding natural language commands.

The structure of the workshop will consist of individual oral presentations and poster presentations by authors followed by short question and discussion sessions concerning their work. In addition, the workshop features four distinguished invited speakers who will present their perspectives on modern architectures and frameworks for interactive robots and other interactive systems. The workshop will close with a general discussion section that aims to collect and summarize ideas raised during the day and come to a common conclusion. We are looking forward to a day of interesting and exciting discussion.

– *Heriberto Cuayáhuatl, Lutz Frommberger, Nina Dethlefs, Martijn van Otterlo*