

Preface

One of the early goals of AI consisted of building complete intelligent robots. This goal has shown to be quite challenging, and AI and robotics researchers have isolated its many facets and focused on making progress on each facet separately. Both AI and Robotics have matured enormously since those days, and today there is a growing interest in getting the two fields back together. Many in the field of robotics believe that the next quantum leap will come by adding capabilities that lie at the core of AI research, like task planning, knowledge representation, learning, and natural interaction. Symmetrically, AI researchers show interest in embedding their techniques in platforms that can perceive, reason and act in real, dynamic physical environments.

Despite the growing interest in bringing the fields of AI and robotics back together, a few obstacles remain. There is a lack of mainstream AI or robotics venues devoted to publishing integrative research that combines techniques from both fields. Researchers in either field are therefore often unaware of the methodology, the successes and the limitations in the other one. As an example, many working in semantic maps in robotics have little knowledge of the work done in knowledge representation in AI, and vice-versa. Practitioners in either field do not always have a clear perception of what is the added value, for them, of making closer contact with the other field. More generally, we do not have enough understanding of what are the fundamental issues in putting together an integrated intelligent robotic system. Examples of such systems exist, but they remain isolated points in a landscape whose overall structure and extent is still not clear.

This workshop is part of a growing set of activities on integrating AI and robotics, organized both at AI venues (such as the AAAI Spring Symposium series, and the AAAI conference) and at robotics venues (such as IROS and ICRA). The first PhD school on AI and robotics took place in Orebro, Sweden, in December 2013. The present event both builds on this momentum and contributes to increase it. All these events are listed in the AI and Robotics wiki (ai-robotics.wikispaces.com).

This workshop takes place at a major AI venue. A sister event has been organized at a major robotics venue: the IROS-2014 workshop on AI and Robotics. An effort has been made to maximize the synergies between the two events by inviting speakers in one workshop to present a poster at the other.

This workshop collects interdisciplinary works in the integration of AI and robotics, with an emphasis toward the development of complete intelligent robots. The workshop will discuss questions like: (1) What are the methods and tools that can be transferred between the two fields? (2) What are the new research questions that must be addressed to enable this transfer? (3) What new application opportunities will be created? (4) What is the scientific profile needed to make progress in this combined field? (5) How can we foster the creation and consolidation of a truly integrated community?

The workshop features a mixture of invited talks, contributed full papers, and short work-in-progress papers. Contributions have been selected for their relevance to the problem of integrating AI and Robotics and for their potential to ignite discussion. At the workshop, discussions will be guided by the questions listed above. A final open-floor discussion will aim at summarizing the issues emerged and planning the next steps for building our community.

Welcome!

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