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Track on Intelligent Robotics and Multi-Agent Systems

The ACM Symposium on Applied Computing (SAC) has been a primary gathering forum for applied computer scientists, computer engineers, software engineers, and application developers from around the world. SAC 2015 is sponsored by the ACM Special Interest Group on Applied Computing (SIGAPP).

Robotics is a multidisciplinary research area that presents an enormous potential. It concerns about developing intelligent robotic systems that are capable of making decisions and acting autonomously in real and unpredictable environments to accomplish valuable tasks. Several complex problems require the use of teams of robots that share some of the same challenges approached by multi-agent systems.

Multi-agent systems (MAS) are groups of intelligent agents that can perceive and act in a given environment to achieve their individual and collective goals. MAS enable solving problems that are beyond the individual capabilities and knowledge of single agents, not suffering from resource limitations, performance bottlenecks, or critical failures usually found in centralized problem solvers. Multi-robot systems are often used to evaluate and validate MAS with physical robot platforms.

For many years, Robotics and Artificial Intelligence (AI) researchers have worked separately in these fields, both fields have matured enormously, and today there is a growing interest in getting the two fields together. Many in Robotics believe that the focus in the near future should be adding capabilities to robots that lie at the core of AI research. Reciprocally, AI researchers aim at embedding their techniques in physical robots that can perceive, reason and act in real, dynamic physical environments. Despite this mutual interest, although there are many conferences focusing either on Robotics or AI separately, there is a lack of scientific venues where both communities can meet. The purpose of this track is therefore to provide a venue to exploit synergies between intelligent robotics and MAS, i.e. between Robotics and AI in general, bringing together researchers from both fields to share experiences, expose issues, and discuss about these exciting fields.

Topics of Interest

Autonomous robotic systems
Multi-agent systems (MAS) theory
Cooperative robotics and cooperative MAS
Multi-robot systems
Mixed human-robotic teams
Coordination and cooperation
Distributed control architectures
Real-world applications of MAS
Self-adaptation and learning
MAS in mobile ad-hoc sensor networks
Robot localization, mapping and navigation
Artificial perception and computer vision
Field robotic applications
Deployment, coverage and patrolling
Evolutionary robotics and swarm robotics
Humanoid robots
Human-machine and human-robot interaction
Entertainment and educational robots
Robotic dexterous grasping
Simulation tools and middleware

Important Dates

October 10, 2014 : Paper submission (** deadline extended **)
November 30, 2014 : Acceptance notification
December 15, 2014 : Camera-ready submission

Original papers addressing the listed topics of interest will be considered. Each submitted paper will be fully refereed and undergo a blind review process by at least three referees. Paper size is limited to 6 pages. A maximum of 2 additional pages may be included for an additional fee. The reviews will be double-blind: authors' names and affiliations must not appear in the paper and self-citations should be in the third person.

Accepted papers will be published in the ACM SAC 2015 proceedings. Registration for the conference is strictly required by at least one of the authors or a proxy, who must attend SAC and present the paper. This is a requirement for the paper to be included in the ACM/IEEE digital library.

Graduate students are invited to submit research abstracts (minimum of 2-page and maximum of 4-page) to the Student Research Competition (SRC), following the instructions published at SAC 2015 website.

Track Website

http://ap.isr.uc.pt/events/sac2015-irmas

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