Special Session
Machine Learning in Robotics

Description/Scope

Robots act in a multimodal world and have to cope with increasingly complex tasks. These tasks have been usually dealt with using action rules and hand-crafted knowledge. This, however, limits the generalization of robotic systems to different domains and applications. Machine Learning is thus nowadays playing an important role in Robotics. Applications of machine learning techniques allow a robot to acquire novel skills or to be able to adapt itself to its environment. Examples of robot skills that can be targeted by machine learning algorithms are locomotion, grasping, manipulation, human-robot adaptive interface, robot perception and vision and linguistic abilities.

Topics (but are not limited to)

- Activity Recognition
- Adaptation, Configuration and Customization
- Behavior and Motion Optimization
- Classification for Robotics Applications
- Data Mining for Robotics
- Evolutionary-Based Learning
- Imitation Learning / Learning from Demonstration
- Integrating Learning with Robot Architectures
- Integration of Multi-Modal Information for Robot Learning
- Intent Prediction and Expression
- Learning Models of Robots, Tasks or Environments
- Learning of Plans, Control Policies and Strategies
- Methods for Probabilistic Inference in Robotics
- Optimization Methodologies for Robotics
- Reinforcement Learning / Learning from Experience.

Organizers

Brígida Mónica Faria, Polytechnic of Porto (ESS - P.PORTO), LIACC, Porto, Portugal
Luis Merino, Pablo de Olavide University (UPO), Seville, Spain
Adrià Colomé Figueras, IRI, CSIC-UPC, Barcelona, Spain
Luis Paulo Reis, University of Porto, FEUP, LIACC, Porto, Portugal

Program Committee

- Ana Lopes - University of Coimbra
- Armando Sousa – Universidade do Porto
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- João Alberto Fabro – Universidade Tecnológica Federal do Paraná
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- Noé Pérez-Higueras - Pablo de Olavide University
- Nuno Lau – Universidade de Aveiro
- Abbas Abdolmaleki – DeepMind
- Guilherme Barreto - Federal University of Ceará