

## PAPER SUBMISSION:

Authors are encouraged to submit high-quality, original work that has neither appeared in, nor is under consideration by, other journals.

All papers will be reviewed following standard reviewing procedures for the Journal.

Papers must be prepared in accordance with the Journal guidelines:

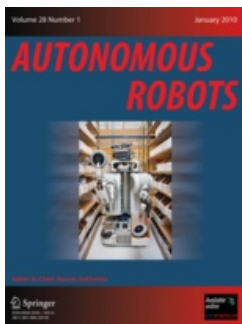
<http://www.springer.com/10514>

Manuscripts must be submitted to: <http://AURO.edmgr.com>. Choose “**Learning for Human-Robot Collaboration**” as the article type.

### Important Dates

- **Paper submission deadline:**  
December 31, 2016
- **Notification to Authors:**  
March 1, 2017
- **Final manuscript due:**  
March 16, 2017
- **Final decision:**  
April 10, 2017

[www.Springer.com/10514](http://www.Springer.com/10514)



ISSN: 0929-5593

**Editor-in-Chief**  
**Gaurav Sukhatme**  
University of Southern  
California

 **Springer**  
science+business media

# AUTONOMOUS ROBOTS

*~Special Issue Call for Papers~*

## Learning for Human-Robot Collaboration

### Guest Editors:

**Heni Ben Amor**, Arizona State University, USA  
**Leonel Rozo**, Italian Institute of Technology, Italy  
**Sylvain Calinon**, IDIAP Research Institute, Switzerland  
**Dongheui Lee**, Technical University of Munich, Germany  
**Anca Dragan**, University of California, Berkeley, USA

Once isolated behind safety fences, the new emerging generation of robots endowed with more precise and sophisticated sensors, as well as better actuators, are materializing the idea of having robots working alongside people not only on manufacturing production lines, but also in spaces such as houses, museums, and hospitals.

In this context, one of the next frontiers is the collaboration between humans and robots, which raises new challenges for robotics. A collaborative robot must be able to assist humans in a large diversity of tasks, understand its collaborator's intentions as well as communicate its own, predict human actions to adapt its behavior accordingly, and decide when it can lead the task or when just follow its human counterpart. All these aspects demand the robot to be endowed with an adaptation capability so that it can satisfactorily collaborate with humans. In this sense, learning is a crucial feature for creating robots that can execute different tasks, and rapidly adapt to its human partner's actions and requirements.

The goal of this special issue is to document and highlight recent progress in the use of machine learning for human-robot collaboration tasks. In recent years, various interesting approaches and systems have been proposed that tackle different aspects of human-robot collaboration. This journal special issue will therefore present the state-of-the-art in the field and discuss future challenges and research opportunities.

Papers addressing one or more of the topics below in the context of human-robot collaboration are of particular interest:

- Learning from demonstration
- Reinforcement learning
- Active learning
- Force and impedance control
- Physical human-robot interaction
- Human-robot coordination
- Recognition and prediction of human actions
- Reactive and proactive behaviors
- Roles allocation
- Haptic communication
- Cooperative human-human interaction
- Human activity understanding
- Learning from tactile experiences
- Human-robot collaborative tasks in manufacturing

