
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 “**Constrained decision-making in robotics**” as the article type.

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Important Dates

- Paper submission deadline: October 15, 2014
 - First reviews completed: January 15, 2015
 - Revised papers due: February 15, 2015
 - Final decision: March 30, 2015
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Autonomous Robots Special Issue Call for Papers

Constrained decision-making in robotics: models, algorithms, and applications

Guest Editors:

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The *Autonomous Robots* journal invites papers for a special issue entitled “*Constrained decision-making in robotics: models, algorithms, and applications*.” As the complexity of robotic tasks grows, robotic decision makers increasingly face the problem of trading off different objectives (for example, safety versus speed, or, in a reinforcement learning framework, balancing exploration versus exploitation for fast convergence). A natural framework for this class of problems is constrained decision-making, whereby a decision maker seeks to optimize a given cost function (often stochastic) while keeping other costs (usually involving risk assessments) below given bounds. Aspects of this framework have been addressed in isolation by the operations research and finance communities (for example, algorithms for constrained Markov decision processes and modeling of risk preferences), but the application of such a framework to the robotics domain is relatively new, fueled by application as diverse as safe autonomous driving, collision avoidance for unmanned aerial vehicles, and risk-aware learning for autonomous robots.

Accordingly, this special issue aims at presenting the state of the art on the fast growing field of (risk-) constrained decision-making in robotics. Specifically, it focuses on models, algorithms, and applications to solve constrained decision and planning problems for single and multiple robot systems. We invite submissions of original research papers addressing constrained decision making problems with an emphasis on theories and frameworks validated on robotic systems operating in the physical world.

Topics of interest include, but are not limited to:

- Modeling of constraints (in particular, risk) for robotic applications;
- Algorithms for risk-aware decision making and learning for robotic systems, with a focus on online computation;
- Chance-constrained robotic motion planning;
- Hierarchical constrained decision making;
- Applications of Constrained MDPs and Constrained POMDPs to robot planning;
- Applications: ground, underwater, aerial, and space robots;
- Benchmarks and performance metrics for constrained decision-making problems;
- Verification and validation techniques for constrained decision-making problems.

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