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# ICAPS 2009

## Proceedings of the Workshop on Bridging the Gap Between Task and Motion Planning

*Edited by*

*Maxim Likhachev, Bhaskara Marthi, Conor McGann and  
David E. Smith*

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# Preface

It has been a longstanding goal of AI and planning to build robots that can move around and manipulate objects in the physical world to achieve their goals. In recent years, the increasing availability of capable mobile manipulation platforms and high-precision sensors, coupled with advances in perception, localization and planning algorithms, have brought us much closer to achieving this goal. Mobile robots have been shown to be capable of navigating large complex spaces for prolonged periods of time. Robotic manipulators have been shown to be capable of autonomously manipulating objects in cluttered spaces.

However, effective, task-oriented mobile manipulation inevitably requires a principled approach to integrating task and motion planning that is capable of operating in real-time in dynamic and complex environments. Historically, discrete task planning has been considered extensively in the AI community while continuous motion planning has been the focus in robotics. The goal of this workshop is to encourage the interaction of ideas between researchers in these fields, to make researchers in one community aware of the research issues faced by those in the other, to find synergy in the research approaches, and to establish promising directions for future research on task and motion planning integration.

— *Maxim Likhachev, Bhaskara Marthi, Conor McGann  
and David E. Smith*  
*Workshop co-Chairs*

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