



Special Issue on the Eleventh Workshop on the Algorithmic Foundations of Robotics, 2014

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Since its debut in 1994, the Workshop on the Algorithmic Foundations of Robotics (WAFR) has showcased fundamental contributions in algorithmic robotics. This special issue is dedicated to the 11th edition of WAFR, which was held on the campus of Boğaziçi University in Istanbul, Turkey, in August 2014. Previous WAFRs were held in Boston, MA, USA (2012), Singapore (2010), Guanajuato, Mexico (2008), New York City, NY, USA (2006), Zeist, The Netherlands (2004), Nice, France (2002), Hanover, NH, USA (2000), Houston, TX, USA (1998), Toulouse, France (1996), and San Francisco, CA, USA (1994).

The issue contains expanded versions of eight papers selected from the 42 papers presented at the workshop. The authors of these papers were invited to submit expanded versions of their WAFR papers to this special issue, where they underwent an additional evaluation following the rigorous *The International Journal of Robotics Research* review process. Some of these papers present novel approaches to classical planning problems, while others introduce novel path planning problems. The paper by Yoo, Fitch, and Sukkarieh presents an algorithm that takes a temporal logic specification as input and produces a flight plan for an aerial robot. Lyu and Balkcom study optimal trajectory generation for systems with a discrete set of controls. In particular, they explore methods to prevent chattering by placing a cost on switching. Lu, Xi, and Lien investigate path planning in dynamic environments with adversarially moving polygonal obstacles. For multi-robot systems, Solovey, Salzman, and Halperin present a novel and efficient approach for finding paths on a roadmap. Bayram and Bozma propose a game-theoretic approach to coalition formation for task allocation. Li, Littlefield, and Bekris present a new way to analyze incremental sampling methods for kinodynamic planning. Yershov and Frazzoli present a numerical approach for feedback planning and show that it is asymptotically optimal. Lim, Hsu, and Lee study

informative path planning where a robot is charged with collecting information and seeks a path that minimizes the expected travel cost until the information objective is attained.

Robotics is advancing to the point that the robots are no longer confined to controlled environments. The results and methodologies such as those presented in this special issue should present a significant step toward this goal. Enjoy!

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