



Call for Papers

Focused Section on Mechatronics in Multi Robot Systems**Abstract**

Multi robot system technology has progressed rapidly from simulation, to laboratory prototyping, to realization of real-world applications. The vision of multi-robot systems promises benefits such as redundancy, fault tolerance, increased coverage and throughput, flexible reconfigurability, and spatially distributed sensing, actuation and functionality. Applications capable of exploiting such features range from remote and in situ sensing to the physical manipulation of objects, and the domains for such applications include land, sea, air and space.

While multi robot systems offer many advantages and increased potential with respect to single robots, there are still many challenges in their design, realization and control that must be overcome in order to field cost-effective and efficient multi robot systems. To name a few of these challenges: inter- and intra- communications among the multi robot systems, relative position sensing, real-time multi robot system controls, fusion of distributed sensors/actuators, efficient man-machine interfaces for supervision and interaction, and design approaches supporting the economical production of such systems.

This Focused Section of IEEE Transactions on Mechatronics (TMECH) is dedicated to new advances in mechatronics that are applicable to multi robot systems. The papers should contain both principle and practical experimental results and are subject to the TMECH review procedures. Potential topics include but are not limited to:

- State-of-art research and technological development survey in the field
- Issues in multi robot systems design and promising solutions
- Conceptual and algorithmic contributions to enabling technologies to experimental results from prototype and fielded systems
- Effects of different communication protocols/properties on multi robot systems performances
- Relative sensing and control issues for multi robot systems coordination/formation
- Cooperative manipulation with multi robot systems
- Efficient and reliable communications protocols and strategies
- Collaborative control frameworks and task coordination and assignment strategies
- Multi robot systems applications
- Multi robot localization and mapping
- Soft computing techniques for multi robot systems
- Modular multi robot systems
- Heterogeneous multi robot systems
- Man-machine interfaces for multi robot systems

Manuscript Submission

Please submit the manuscripts in PDF format to <http://mc.manuscriptcentral.com/tmech-ieee>, and indicate on your cover letter that "This paper is submitted for possible publication in the Focused Section Mechatronics in Multi Robot Systems." Instructions for authors are available online at: <http://www.ieee-asme-mechatronics.org>. If you have any questions relating to this Focused Section, please email one of the guest editors.

Important Dates: July 15, 2008

September 15, 2008

October 31, 2008

December 15, 2008

January 15, 2009

April 2009

Paper Submission

Completion of First Review

Submission of Revised Papers

Completion of Final Review

Submission of Final Manuscripts and Copyright Forms

Publication

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