

Call for Papers
INTELLIGENT SERVICE ROBOTICS
Special Issue on
Multi-scale Manipulation Toward Robotic Manufacturing Technologies

Micro-nanorobotics for robotic manufacturing faces tough challenges from uncertain interaction forces, environmental complexities and variability, to potential operational failures. These challenges render current efforts based on automatic control ineffective, and the level of automation is so far rather limited, not much beyond telemanipulation and basic visual servoing. Machine learning has been proven very promising in increasing the autonomy of macro robotic systems. Due to the low reliability of models at micro-nanoscale, machine learning becomes an especially attractive approach. Nano/micro manipulation can be benefitted from recent developments in macro-scale manipulation. At the same time, handling problems in nano/micro scale particles would inspire researchers in macro-manipulation for further innovation in their methodologies. This issue will be unique in bringing new ideas in both micro and macro scale manipulation and build original cooperation between micro-nanorobotics and manufacturing or machine learning fields. The central theme of the Special Issue is on *recent advances in Multi-scale Manipulation Toward Robotic Manufacturing Technologies* and will capture the surge of interest in the application of machine learning technologies to manipulation in multi-scale. We plan to welcome original, significant and visionary papers describing scientific methods and technologies that improve the efficiency of manipulation in multi-scale. The content could also present surveys and reviews that summarize state-of-the-art practices in this arena. Special attention will be paid to papers focusing on microassembly of microdevices, contactless manipulation, nanoparticle applications, dexterous handling in multiple scales, machine learning for manipulation, active touch, micro-manipulation: transportation and assembly, intention prediction approaches to interact naturally with the microworld. Submissions of scientific results from experts in academia and industry worldwide will be strongly encouraged. Topics to be covered include, but are not limited to:

- Micro-nanorobotics
- Nano/micro particle manufacturing
- Machine learning for manipulation
- Micro/macro manipulation
- Sensing for manipulation
- Microdevices for microassembly
- Contactless manipulation
- Haptic issues in micro part handling

Important Dates

- ~~February 15, 2015: Paper submission deadline.~~
- **March 15, 2015: New submission deadline**
- April 15, 2015: Completion of the review.
- May 1, 2015: Final manuscripts due.
- July 1, 2015: Tentative publication date.

Guest Editors

Hyungpil Moon (hyungpil@me.skku.ac.kr), Associate Professor, Sungkyunkwan University, Korea

Michael Gauthier (Michael.gauthier@femto-st.fr), Head of the AS2M department, FEMTO-ST Institute, France

Paper Submission

All papers are to be submitted through the journal, Intelligent Service Robotics submission site at <http://www.editorialmanager.com/jist>. Please select "S.I.: MMRMT" in the article type menu of your submission. All manuscripts must be prepared according to the JISR publication guidelines. Please address all inquiries via e-mail to hyungpil@me.skku.ac.kr.



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