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Special Issue on Advances in Automation Science and Engineering for Automotive Manufacturing

Automation for automotive manufacturing has attracted substantial efforts from researchers in both academic and engineering communities. The goal is to provide efficient scientific and engineering solutions for process control, production planning and operation, and supply chain management. In recent years, significant advances in technology, the fast growing economy and rapidly changing market have generated numerous opportunities for innovation in automation. At the same time, many new challenges have emerged in order to apply and implement these innovations. Such challenges have significantly expanded the scope of traditional automation for automotive manufacturing. The central theme of this Special Issue is *advances in automation science and engineering for automotive manufacturing*, with modeling, analysis, control and optimization being the focus areas. The purpose is to show the state-of-the-art research and applications in the general area of automation in automotive manufacturing, by bringing together researchers and practitioners from both academia and industry, to address the significant advancement, expose the unsolved challenges, present the needs for integration with new technologies, and provide visions for future research and development. This special issue aims to publish original, significant and visionary automation papers describing scientific methods and technologies that improve efficiency, productivity, quality and flexibility for automotive manufacturing with both solid theoretical development and practical importance. Submissions of scientific results from experts in academia and industry worldwide are strongly encouraged. Topics to be covered include the following in automotive manufacturing, but are not limited to,

- *Manufacturing process and control*: virtual validation and integration, digital assembly, machine learning, diagnostic and prognostics, process automation, manipulation and grasping, part feeding and fixturing, motion system design and analysis, virtual reality and simulation, sustainable manufacturing.
- *Robotics and vision systems*: mobile and network robots in automotive manufacturing, control, coordination and scheduling, robot vision, vision application systems, factory automation.
- *Production, maintenance, planning and scheduling*: real-time optimized system design and analysis, distributed control, multi-agent planning, integrated operation, scheduling and control algorithms, integrated productivity and quality analysis, discrete-event system, intelligent maintenance scheduling, material handling optimization.
- *Sensor networks and RFID applications*: modelling, characterization, monitoring, detection, diagnosis and prognosis, data mining, autonomous or agent-based methods, system integration of RFID, sensors using RFID tags.
- *Supply chain and logistics*: design and analysis, planning, coordination and collaboration, reversed/closed supply chain, production/inventory control, transportation and logistics, e-business, risk management, internet analytics for forecasting and planning, demand sensing, procurement auctions, service oriented architectures, outsourcing.

Important Dates

- January 1, 2009: paper submission deadline.
- May 1, 2009: completion of the first round review.
- September 1, 2009: completion of the second round review.
- October 1, 2009: final manuscripts due.
- January, 2010: tentative publication date.

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Paper Submission

All papers are to be submitted through the IEEE's **Manuscript Central** for Transactions on Automation Science and Engineering <http://mc.manuscriptcentral.com/t-ase>. Please select "Special Issue" under Manuscript Category of your submission. All manuscripts must be prepared according to the IEEE Transactions on Automation Science and Engineering publication guidelines <http://www.engr.uconn.edu/~jeetase/>. All papers will be reviewed following the standard IEEE T-ASE reviewing process. Please address inquiries to jingshan@engr.uky.edu.