IEEE Computational Intelligence Magazine  
Special Issue on “Computational Intelligence for Space Systems and Operations”

Call for Papers

Background
Current and future space missions require an increasing level of autonomy or intelligence distributed across the space systems that have computing capabilities to implement intelligent functionalities for decision making. Such computational intelligence (CI) allows spacecraft (vehicles and robots alike) to respond rapidly to opportunistic events in deep space when remote operations are not practical due to communication latency, or to enable ground operators to optimize complex mission (e.g. involving multiple spacecraft) planning and scheduling processes, and so on. Typical CI approaches that can be used to improve spacecraft autonomy include mathematical, probabilistic and statistical modeling, control, automation and optimization, safety and reliability, system identification, monitoring and fault detection, etc. There are therefore strong motivations to develop these expertise areas for answering to the research challenges posed by astronautics and space engineering.

Scopes
This special issue invites papers that tackle space engineering problems using CI techniques, with particular interests in the following topics:

- Autonomous mission planning and scheduling for manned/unmanned single/multiple spacecraft
- Autonomous 2-dimensional or 3-dimensional path planning for space and planetary robots
- Autonomous fault detection, isolation and recovery
- Automated spacecraft vision-based feature tracking identification
- Complex space systems modeling and control
- Space software validation and verification
- Human-machine interface within space missions

Deadlines
Submission of Manuscripts: 1st May 2013  
Notification of Acceptance: 1st June 2013  
Submission of Camera-Ready Papers: 1st July 2013

Paper Submissions
The maximum length for the manuscript is typically 25 pages in single column with double-spacing, including figures and references. Authors of papers should specify in the first page of their manuscripts corresponding author’s contact and up to 5 keywords. Submission should be made via email to one of the guest editors below:

Guest Editors
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