

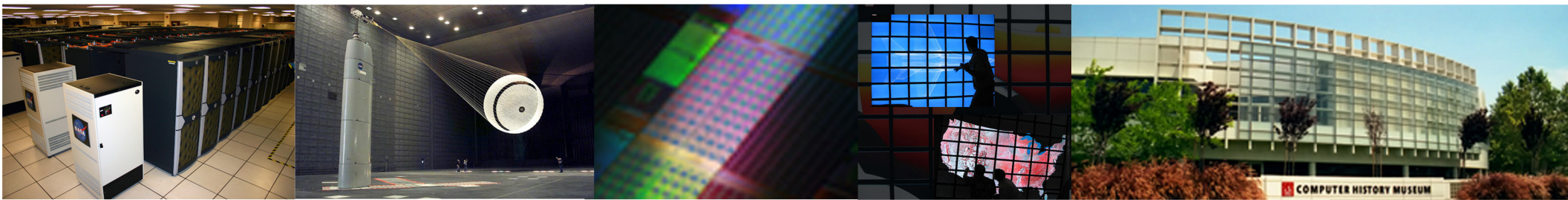
FOURTH IEEE INTERNATIONAL CONFERENCE ON
SPACE MISSION CHALLENGES FOR INFORMATION TECHNOLOGY



Local Arrangements by NASA Ames Research Center

Technical Committee on Autonomous and Autonomic Systems (TCAAS)
Technical Committee on Complexity in Computing (TCCX)

SMC-IT 2011 Crowne Plaza Cabana Hotel, Palo Alto, U.S.A. <http://smc-it.org>
August 1 - 4, 2011



NOTE: To receive future announcements, please send a blank email to: smc-it-join@smc-it.org

FIRST CALL FOR PAPERS AND
MINI-WORKSHOP TOPICS

8-Page Manuscripts Due December 31, 2010

The role of space information technology has progressively grown in importance from the earliest days of space exploration to today, with the result that it often dominates the costs and schedules of space mission projects. The IEEE International Conference on Space Mission Challenges for Information Technology (SMC-IT) is the first forum to gather system designers, engineers, scientists, practitioners, and space explorers with the objective of advancing information technology for space missions. The forum will provide an excellent opportunity for fostering technical interchange on all hardware and software aspects of IT applications in space missions.

The role of space information technology has progressively grown in importance from the earliest days of space exploration to today, with the result that it often dominates the costs and schedules of space mission projects. The IEEE International Conference on Space Mission Challenges for Information Technology (SMC-IT) is the first forum to gather system designers, engineers, scientists, practitioners, and space explorers with the objective of advancing information technology for space missions. The forum will provide an excellent opportunity for fostering technical interchange on all hardware and software aspects of IT applications in space missions.

The conference will focus on current IT practice and challenges as well as emerging information technologies with applicability for future space missions. IT in all aspects of the space mission will be explored, including flight systems, relevant ground systems, science data processing, engineering and development tools, operations, and telecommunications. The entire IT lifecycle of the mission development will also be covered, such as conceptual design, engineering tools development, integration and test, operations, science analysis, and quality control.

Novel space IT papers are solicited from all sectors of the space community, including earth orbiting systems, deep space missions, ground support systems, instruments, science, landers, rovers, and probes. The conference will address all space end application areas, including civilian, military, and commercial. Likewise, domain areas extend from human crewed missions to robotic, and Earth observing to deep space.

What's new for SMC-IT 2011? First, based on past attendee feedback, the conference will be shifting to a two-year cycle instead of three to provide more frequent interactions. Second, rotating through other venues was suggested in order to better engage different regional communities. With that, we are pleased to announce that SMC-IT 2011 will be held in the beautiful city of Palo Alto, California, located in the heart of Silicon Valley, with local arrangements being provided by NASA Ames Research Center. This promises to be an exciting venue for stimulating many exciting technical exchanges in our field (more details to follow). Third, to streamline the conference administration, SMC-IT 2011 will shift to a single pass paper review process. Specifically, instead of first submitting an abstract to test the waters (as in the past) followed by a full paper, authors will be asked just to submit a full 8-page camera ready paper at the outset. This will have the positive benefit of shifting the due date later, making contributed work more timely at the conference, and also reducing overall author and reviewer time over the course of the pre-conference preparation. As in the past, accepted papers will be published in the the conference proceedings, to be available at the conference and also accessible through IEEE Xplore data base.

SMC-IT 2011 will also continue the highly successful mini-workshop session format that was first introduced in 2006, to explore specific emerging technology themes in greater depth. Each mini-workshop will typically run as one track during one day and incorporate both invited and contributed papers. If you would like to organize such a mini-workshop, please submit a short abstract on the theme, scope, and goals as part of this CFP.

A partial list of example technology areas for both papers and mini-workshops include:

- * **Reliable software engineering**
- * **Autonomy and automation for flight and ground operations**
- * **CubeSat / NanoSat software**
- * **Cybersecurity for flight and ground systems**
- * **Robotics, and Human / Robotic interface**
- * Tools for engineering design, modeling, risk management, or rapid technology mission infusion
- * **Innovative on-board fault tolerant and fault management methods**
- * Embedded and real-time IT systems (for control or onboard processing)
- * Machine vision and advanced image processing methods
- * **Next Generation Flight Computing (including fault tolerant computing)**
- * Novel applications - spacecraft, science, ground systems, telecom
- * **Innovative operations technologies**
- * Novel aerospace software engineering methods
- * Middleware services
- * Knowledge capture, management, and ontologies
- * **On-board vehicle health diagnosis and repair**
- * **Astronaut health and life support IT technologies**
- * Science and user software applications
- * **Tradeoffs of on-board vs ground computing**
- * **Space communications**
- * **Smart instruments for sensor fusion, science, civil and defense**
- * **Mission assurance IT systems**
- * New software architectures, languages, compilers, tools, for space missions
- * **Advanced high performance computing systems and applications**
- * Revolutionary new information technologies

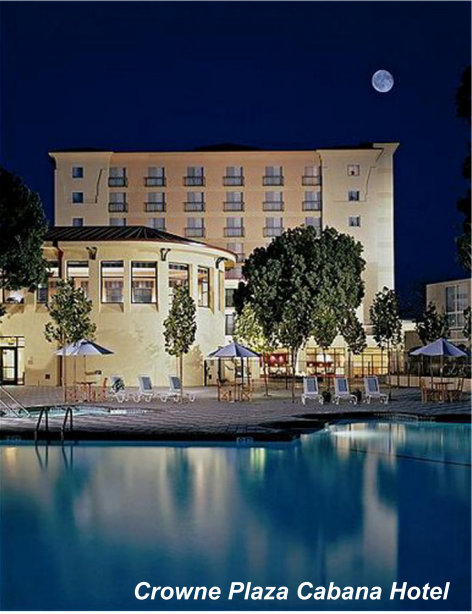
Those topics that are in **bold** are especially being sought as projected themes of the conference.

As mentioned earlier, manuscripts will be reviewed in a single-step process. Manuscripts (up to 8 pages) for contributed papers, as well as mini-workshop proposals, must be received by December 31, 2010. Acceptance Notification will be mailed by March 2, 2011. The template for each can be found at the SMC-IT 2011 web site:

<http://smc-it.org/authorinfo.html>

The conference will be held in beautiful city of Palo Alto, located right in the heart of Silicon Valley, and near Stanford University, Ames Research Center, Computer History Museum, and numerous high tech companies. Within a short drive lie other interesting Bay Area destinations such as San Francisco, Monterey/Carmel, and Napa Valley.

For more detailed information on specific IT topic areas, schedule, author information, and general logistics information please refer to the conference website.



Crowne Plaza Cabana Hotel

SCHEDULE

OCTOBER 1, 2010
Call for Full Papers and
Mini-Workshop Summaries

NOVEMBER 1, 2010
Author Submission Website
Open

DECEMBER 31, 2010
Submission deadline for full
8-page Papers &
Mini-Workshop Topics

MARCH 2, 2011
Author Acceptance
Notification

April 1, 2011
Early Bird Registration
Opens

APRIL 15, 2011
Camera Ready Manuscripts
Due (incorporating reviewer
comments) for upload to the
IEEE CPS web site

June 1, 2011
Regular Registration Opens

AUGUST 1 - 4, 2011
Conference

CONFERENCE CHAIRS:

Larry Bergman
(+1 818 393-5314)
Sven Grenander
(+1 818 354-0156)

chairs@smc-it.org

