FIFTH CALL FOR PAPERS

Note: Due to the US Government Shutdown, the Author Paper Submission Deadline has been extended to **March 6, 2019**

SMC-IT 2019

7th International Conference on Space Mission Challenges for Information Technology
Pasadena, California, USA July 30 - August 1, 2019

Venue: Caltech

Sponsored by: IEEE Computer Society and the Technical Committee on Software Engineering
http://smc-it.org

Since 2003, the International Conference on Space Mission Challenges for Information Technology (SMC-IT) has gathered system and software engineers, scientists, and other practitioners with the objective of advancing information technology (IT) for space missions. As IT has progressively grown in importance to space exploration efforts and vice versa, it often becomes a major driver for what can be accomplished in space, as well as frequently dominating costs and schedules of space missions. The conference will provide an excellent opportunity for technical interchange for all aspects of IT used for space missions.

In 2019, the conference will emphasize current and emerging IT best practices, opportunities, and challenges for future space missions and enhancement of current missions. All aspects of space missions will be explored, including: flight systems, ground systems, science data processing, engineering and development tools, operations, and communications. The entire IT lifecycle of mission development, operations, and evolution will be considered.

SMC-IT 2019 continues the practice of rotating venues to better engage regional communities. In 2019, SMC-IT will return to its roots by being held in Pasadena, California.

We would also like to announce that the successful Space Computing Conference series will be co-convened with SMC-IT 2019, affording a deeper exploration of current and future flight processor technology and systems, such as memory and storage, I/O buses, multi-core architectures, special purpose processors, and power and fault management methods. Please refer to the Space Computing CFP { spacecomputing.ecs.baylor.edu } for more information about the content of Space Computing. Authors may submit substantially different papers to both workshops; however, submitting the same or similar papers to both workshops is not permitted. The two Program Committees will coordinate their separate review processes. If an author submits their paper to one event and the Program Committees believe that it is a better fit for the other event, the Program Committees will help authors decide whether the paper should be moved to the other event.

PAPER & POSTER SUBMISSIONS

Novel papers are solicited from all sectors of the aerospace community, including earth orbiting systems, deep space missions, ground support systems, instruments, science, landers, rovers, and probes. The conference will address civil, military, and commercial application areas for human and robotic missions.

SMC-IT 2019 will consider two types of submissions: full papers (up to 8 pages) with a verbal presentation and posters (up to 2 pages). SMC-IT 2019 will use a single-pass, full-paper review process. Authors will submit a final version of their paper of up to 8 pages at the outset.

All accepted papers at SMC-IT 2019 will be published in the IEEE conference proceedings, to be available at the conference and indexed in the IEEE Xplore data base. Note that IEEE has a Podium and Publish policy for conferences, which means that no manuscript will be published in IEEE Xplore without first being presented at the conference. Selected papers presented will be invited to appear in a special issue of a reputable journal in the field.

MINI-WORKSHOP SUBMISSIONS

SMC-IT 2019 will continue the highly successful mini-workshop session format to explore specific emerging technology themes in greater depth. Each mini-workshop typically runs as one track for one day or one half day and incorporates both invited and contributed papers.

To propose a mini-workshop topic, please submit a 1-2 page abstract including the theme, scope, and goals of your workshop idea, as well as any potential speakers already identified.

TECHNICAL TOPICS

Topics of interest include, but are not limited to, the following:

* Intelligent Spacecraft (computational intelligence; autonomy and autonomous systems; UAV/UAS in aerospace; cooperative systems/swarming)

* Data Analytics for Advanced Instruments (sensors, remote sensing, sensor networks; novel exploitation techniques, algorithms, and data analytics; machine learning)

* Advanced Computing and Big Data (intelligent systems; knowledge extraction and management; data mining; data science life cycle; cloud computing in space; quantum computing)

* Robotic Manufacturing and Assembly of Large Space Structures (3D printing in space; robotics cooperation and interaction; tele-robotics)

* Augmented Reality/Virtual Reality (AR/VR applications to tele-robotics, data processing, mission operations, space science analysis; video game technology advancing space capabilities)

* Robotics for Exotic Mission Destinations (novel space exploration concepts enabled by robotic advancements; humans working with robots in space)

* Space Networking (resilient communications; space-terrestrial internetworking, interoperability; cross-agency standards)

* Fault Tolerant Space Processor, Memory, and Storage (innovative resilient architectures, fault and power management approaches, architectures for emerging AI, big data, robotic vision, and intelligent systems applications)

* Reliable Software and Verification & Validation approaches (design for test; design for change; re-usable software architectures; agile development and project management; verification of complex systems)

* Ground Control (e.g. mission planning and scheduling; distributed and collaborative mission planning; human-machine interactions; increasing velocity of ground system development)

Although any relevant topic will be considered for submitted papers, the topics listed above are especially being sought as projected themes of the conference. In addition, papers that span two or more topic areas (e.g., novel approaches that draw upon cross-cutting technologies) are also strongly encouraged. Additionally, both SMC-IT and Space Computing are especially seeking student papers and presentations, or posters. For more detailed information on specific IT topic areas, schedule, author information, and general logistics information, please refer to the conference website: http://smc-it.org

Manuscripts (up to 8 pages) for full papers as well as posters and mini-workshop proposals (1-2 pages) must be received by **March 6, 2019**. Acceptance notification will be emailed by April 15, 2019. The template for each can be found at the SMC-IT 2019 web site: http://smc-it.org

SCHEDULE

September 7, 2018	Call for Full Papers, Posters, and Mini-Workshop Proposals
October 8, 2018	Author Submission Website Open
March 6, 2019	Final Submission Date for Papers, Posters, and Mini-Workshop Proposals
April 15, 2019	Authors Acceptance Notification
May 31, 2019	Final Manuscripts Due (incorporating reviewer comments)
May 6, 2019	Early-bird Registration opens
July 30 - Aug 1, 2019	Conference

The conference will be held at the beautiful California Institute of Technology (Caltech) campus in Pasadena, California. Caltech is located 12 miles northeast of Downtown Los Angeles and about 25 miles from the Los Angeles International Airport. Quite separate from Los Angeles, Pasadena is a vibrant city in its own right with a rich set of cultural attractions and

accommodations, including modern hotels, wide range of restaurants, many significant museums, and of course, home to not only Caltech, but also the Jet Propulsion Laboratory, the Norton Simon Museum, Rose Bowl, Old Town Shopping district, and within close proximity to other Southern California points of interest, such as Hollywood, Santa Monica, Beverly Hills, Griffith and Mt Wilson Observatories, California Science Center (new home of Space Shuttle Endeavor), Universal Studios, Disneyland, and of course Southern California's beautiful beaches. Additional information will be forthcoming on possible post-conference tours to a few of these.

To be placed on the SMC-IT mailing list, please send a blank email to smc-it-info-join@baylor.edu To be removed from the list, please send a blank email to smc-it-info-leave@baylor.edu

We look forward to seeing you in Pasadena in Summer 2019!

CONFERENCE CHAIRS:

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