

CALL FOR PAPERS for

Journal of Aerospace Information Systems

Special Issue on “Estimation and Information theory applications for Resilient and Distributed Operation of Aerospace Systems”

Extended Deadline: April 30 2014

The *Journal of Aerospace Information Systems* (formerly published as the *Journal of Aerospace Computing, Information, and Communication* (JACIC)) is devoted to the applied science and engineering of aerospace computing, information, and communication. Original archival research papers are sought which include significant scientific and technical knowledge and concepts. The Journal publishes qualified papers in areas such as aerospace systems and software engineering; verification and validation of embedded systems; the field known as ‘big data,’ data analytics, machine learning, and knowledge management for aerospace systems; human-automation interaction and systems health management for aerospace systems. Applications of autonomous systems, systems engineering principles, and safety and mission assurance are of particular interest. Articles are sought which demonstrate the application of recent research in computing, information, and communications technology to a wide range of practical aerospace problems in the analysis and design of vehicles, onboard avionics, ground-based processing and control systems, flight simulation, and air transportation systems.

Organizers:

Dr. Girish Chowdhary is an Assistant Professor at Oklahoma State University. He was a postdoctoral associate at the Massachusetts Institute of Technology’s Laboratory for Information and Decision Systems, and received his Ph.D. from Georgia Institute of Technology in 2010 where he was a member of the UAV Research Facility. Prior to joining Georgia Tech, Girish worked as a research engineer with the German Aerospace Center’s (DLR’s) Institute for Flight Systems Technology in Braunschweig, Germany. His research interests include GPS denied navigation, distributed estimation and control, adaptive and fault tolerant control, machine learning and Bayesian inference, and collaborative planning and learning. Girish has over 10 years of research experience in the field of Unmanned Aerial Systems, and has been involved in automation of over 10 research UAS. He is the author of over 50 peer reviewed publications. Teams led by him have stood first in various Miniature UAS competitions, and he is the recipient of the best paper award at AIAA Guidance Navigation and Control conference in 2012, and the first Symposium on Unmanned Systems.

Dr. Rajnikant Sharma received the B.E. degree in electrical engineering from the University of Rajasthan, Jaipur, India, in 2003, the M.E. degree in aerospace engineering from the Indian Institute of Science, Bangalore, India, in 2005, and the Ph.D. degree in electrical engineering in 2011 from the Brigham Young University, Provo, UT. Since August 2013, he has been with the Electrical and Computer Engineering Department at Utah State University, Logan, UT, where he is currently an assistant professor. In 2011-2013 he was a postdoctoral fellow at Academy Center for UAS Research, US Air Force Academy,

Colorado. In 2005-2007 he worked as scientist B at the Center for Airborne Systems, Defense Research and Development Organization, Ministry of Defense, Bangalore, India. His primary research interest are guidance, navigation, and control of unmanned aerial vehicles, cooperative localization, distributed and active sensing, dynamic sensor resource management, vision-based geolocalization, and GPS denied navigation.

Dr. Adam Rutkowski is a research engineer in the Munitions Directorate of the Air Force Research Laboratory at Eglin AFB, FL. He was a postdoctoral associate of the National Research Council in 2008, after receiving his Ph.D. in mechanical engineering from Case Western Reserve University. His primary research interests are guidance, navigation, and control, with particular interests in GPS denied navigation and the effects of path planning on navigation performance. Dr. Rutkowski also has significant interest in nature-inspired navigation and robotics.

Key research areas included in the special issue are:

- *GPS denied navigation and control*
- *Distributed estimation and control in uncertain environments*
- *Resilient navigation in presence of cyber attacks, GPS spoofing, and sensor takeover*
- *Information sharing in hostile, cluttered, or resource-constrained environments*
- *Collaborative multi-agent and multi-sensor navigation techniques for safe operation in cluttered, hostile, and GPS-denied environments*
- *Vision based control for systems with fast-dynamics and resource constraints*
- *Flight validation of high-integrity manned/unmanned aircraft navigation and control in uncertain and GPS denied environments*
- *Distributed parameter identification and environment model learning*
- *Bayesian learning and perception for Aerospace applications*

These areas are only indicative. The special Issue is also open to manuscripts that are relevant to the applied science and engineering of aerospace computing, information, and communication but do not fit neatly into any of the above areas. We do envisage, however, that successful manuscripts will include experimental results, or at least sophisticated simulations of real-life mechanical or aerospace systems.

Estimation and information theory have traditionally played key roles in Aerospace systems. They have been critical to the success of key Aerospace breakthroughs, including long-range missiles, and Unmanned Aerospace Systems. The goal of this special issue is to bring together quality papers that focus on next generation applications of estimation and information theory to Aerospace systems. Papers are encouraged in the areas of own-ship state estimation and navigation algorithms in challenging environments; GPS denied navigation; navigation in hostile environments with potential GPS or other sensor blockage, spoofing, and take-over; environment perception in cluttered environments; Simultaneous Localization and Mapping; distributed estimation, information sharing, and control; distributed parameter identification and environment perception; transfer learning; and other applications of information and estimation theory to aerospace systems.

Preparation of Manuscript

Before you submit to an AIAA journal, please review your manuscript to ensure that it meets the following requirements. If your manuscript does not meet the requirements on this list, it may be returned to you for further revision before it can be assigned to an associate editor.

1. Papers must be in single-column, double-spaced format.
2. Each full-length paper must have a summary-type abstract of 100 to 200 (maximum) words in one paragraph. The abstract should NOT state what the author WILL do, present, or discuss in the article. The abstract MUST summarize the research that was carried out and the major findings.
3. Papers with many symbols should have a nomenclature that defines all symbols with units, to be inserted between the abstract and the introduction. Acronyms should be defined in the text, not in the nomenclature.
4. An introduction that states the purpose of the work and its significance relative to the prior literature is required.
5. Equations should be numbered sequentially and not by section.
6. References should be introduced and in numerical order (not just by author name); websites should not be referenced but should be mentioned in the text or in a footnote.
7. Figure legends should be readable and based on AIAA format instructions.
8. Conclusions should be a detailed discussion of study findings. Do not introduce concepts not presented in text; do not refer to other work.
9. Grammar should be checked for clarity.

All manuscripts must be submitted through the Manuscript Central site

<http://mc.manuscriptcentral.com/aiaa-jacic>.

The review process will follow the standard procedures of The American Institute of Aeronautics and Astronautics (AIAA), but will be managed by the Associate Editor. Each submitted manuscript will undergo a full review process involving at least three reviewers.

Deadline

Submissions are due by April 30, 2014.

Publication Date

The anticipated publication date of the special issue is July 2014.

Journal Website:

<https://www.aiaa.org/JournalDetail.aspx?id=3434>

Contact Email: girish.chowdhary@okstate.edu
rajnikant.sharma@usu.edu
Adam.Rutkowski@eglin.af.mil