



Call for Papers
IEEE Aerospace and Electronic Systems
Magazine



Special Issue on
Avionics Systems: Future Challenges

Avionics represents a core component of all aerospace systems, which is experiencing a fast evolution fueled by technological developments and concepts such as flight autonomy and the widespread adoption of artificial intelligence. These technologies have the potential to transform the future of aviation and spaceflight, but also pose challenges relevant to the need to combine innovation and safety.

For example, safe integration of Unmanned Aircraft Systems (UAS) in all classes of airspace is a key prerequisite to unleash their potential. Technological advances required for autonomous aircraft and Urban Air Mobility (UAM) and the application of Artificial Intelligence (AI) offer significant opportunities but also present unique challenges. Increased dependency on connectivity, automation and autonomy may increase avionics vulnerability, which requires an integrated, cyber aware approach to achieve cyber resiliency. Similarly, the new exciting perspectives offered by the space economy have enormous potentials, but will require new approaches to space mission management and new cyber-physical architectures supporting Space Traffic Management (STM) operations.

The AESS Avionics Systems Panel addresses all the fields of avionics research supporting commercial, military, and general aviation operations. Cognizant of challenges future avionics systems must overcome, the Avionics Systems Panel intends to compile a Special Issue of the AESS Magazine that will cover the broad field of avionics systems research and innovation. This Special Issue will present the view point of experts in the relevant domains to illustrate the current state-of-research and to discuss the challenges that must be addressed to support further advances in industry-focused research and innovation.

Key Topic Areas

- Airspace Integration of UAS, UTM, Urban Air Mobility, and related CNS/ATM technologies
- Avionics for Autonomous Systems
- Artificial Intelligence and Machine Learning in Avionics Systems Design and Operations
- Certification Framework Evolution for Integrated CNS/ATM and Avionics Systems (CNS+A)
- Avionics for Future Space Transport, Space Traffic Management and Intelligent Satellite Systems
- Advances in Avionics Human-Machine Interfaces and Interactions
- Fault-Tolerant Avionics and Health Management Systems
- Cyber-Physical Security of Avionics Systems
- Current Trends in Avionics and CNS/ATM Education to meet industry demands

For information on paper submission, prospective authors should visit http://sysaes.msubmit.net/cgi-bin/main.plex?form_type=do_cat&file_nm=info.htm. Manuscripts should be submitted using the manuscript submission web site for IEEE Aerospace and Electronic Systems Magazine at <http://sysaes.msubmit.net>. Manuscripts will be peer reviewed according to the standard IEEE AES process.

Important Dates

- Manuscript submission deadline: 31 August 2020
- First review completed: 15 October 2020
- Revised manuscript due: 15 December 2020
- Second review completed: 31 January 2021
- Final manuscript due: 28 February 2021

Guest Editors

- Prof. Roberto Sabatini – RMIT University, Melbourne, Australia - roberto.sabatini@rmit.edu.au
- Prof. Kathleen A. Kramer - University of San Diego, San Diego, CA, USA - kramer@sandiego.edu
- Mr. Alope Roy - Honeywell, Columbia, MD, USA - Alope.Roy@honeywell.com
- Dr. Erik Blasch, Air Force Office of Scientific Research, Arlington, VA, USA - erik.blasch.1@us.af.mil
- Prof. Giancarmine Fasano - University of Naples Federico II, Naples, Italy - giancarmine.fasano@unina.it