

CALL FOR PAPERS

IEEE Transactions on Aerospace and Electronic Systems (T-AES) Special Section on Industrial Information Integration in Space Applications

Scope and Aims

This SS proposal is highly motivated to solicit, identify, and disseminate the state of the art of researches in the theories, methodologies, tools, and case studies for the assurance of security, safety, reliability, and resilience of integrated space systems. Traditional space systems are enclosed and their controls are centralized. With the rapidly developed information technologies such as Internet of Things, Artificial Intelligence, Machine Learning, Cloud Technology, and Big Data Analytics, more and more space systems tend to be decentralized and distributed; but this poses great challenges in assuring security, reliability, and resilience of integrated space systems, and attract numerous researchers in the field of industrial information integration to advance the theories, methodologies, and tools to expand the capabilities and applications of space systems in terms of security, reliability, and resilience. Guest editors expect that T-AES readers can gain the basic understanding of the cutting-edge technologies and the direction of future researches in the field.

Space Informatics is the application of information and decision sciences in space research. Space research involves complex systems and models requiring the integration of hardware and software. Information modeling, simulation, optimization, knowledge engineering, decision support systems are among widely used industrial information integration systems and methodologies employed in space research. Space Informatics modeling can be used to represent in-orbit spacecraft, satellites, space-stations of any type in deep space exploration missions from ground control, user payload, space weather, remote sensing and telemetry, and many more spaceflight activities to decision and systems sciences, data science, predictive modeling, technology assessment, and project planning and control. Complex space systems require a multi-disciplinary approach to industrial information integration, including mathematical science, decision science, systems science, data sciences, computer science, computer engineering, electrical and electronic engineering, mechanical and manufacturing engineering, aerospace engineering, and many more cutting edge technologies. This special issue aims at providing the latest industrial information integration research in space informatics, including artificial intelligence, expert systems, knowledge management, decision support systems, machine learning, autonomous flying robots, unmanned vehicles, big data, and IoT in the aeronautics and aerospace industry.

Topics of interest include (but are not limited to):

- Deep space exploration
- Spacecraft systems modelling and simulation
- Spacecraft systems engineering and optimization
- Decision support systems
- Knowledge management systems
- Information architectures
- Information security and reliability
- Autonomous agents and robots-Orbit tracking and control
- Telematics and big data analytics
- Risk and damage assessment and control
- Space safety and reliability, spacecraft resilience
- Vision system and speech control system
- IoT, sensors, data fusion, blockchain, and deep learning
- Expert system, artificial intelligence and neural networks applications
- Space security, safety and reliability
- Energy management and performance measurements
- Economic, human, environmental and legal aspects of spacecraft informatics

Important Dates:

Submission window: November 23, 2021 – December 31, 2021

Revised manuscript due: April 30, 2022

Final manuscript due: June 30, 2022

First review completed: February 28, 2022

Second review completed: May 31, 2022

Publication date: fourth quarter of 2022

Submissions will be reviewed according to standard T-AES procedures for regular papers. Prospective authors should visit taes.msubmit.net for submission information. Use the category Special Section: Meta-level and Adversarial Tracking.

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