Special Issue

Intelligent Guidance, Navigation, and Control for Next-Generation Spacecraft

Message from the Guest Editors

Spacecraft guidance, navigation, and control (GNC) is entering a new era with the integration of AI, autonomous decision-making, and multi-agent coordination. As space missions become more complex, including satellite constellations, space robotics, high-speed re-entry, and deep-space exploration, traditional GNC methods must evolve to incorporate intelligent approaches while ensuring reliability. This Special Issue of *Aerospace* invites contributions that combine rigorous GNC theory with advanced techniques. Topics include reinforcement learning for trajectory planning, neural network-based fault diagnosis, geometric control of space manipulators, satellite swarm coordination, AI-enhanced re-entry guidance, and hardware-in-the-loop validation. Submissions should balance algorithmic innovation with system-level robustness, featuring stability-guaranteed control, explainable AI, or flight-relevant simulations. Original research, reviews, and case studies from both theoretical and experimental perspectives are welcome.

Guest Editors

Prof. Dr. Shufan Wu
Dr. Qiang Shen
Dr. Yixin Huang

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Aerospace
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
aerospace@mdpi.com

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You are welcome to contribute a research article or a comprehensive review for consideration and publication in *Aerospace* (ISSN 2226-4310), an on-line, open access journal.
Aerospace adheres to rigorous peer-review as well as editorial processes and publishes high quality manuscripts that address both the fundamentals and applications of aeronautics and astronautics. Our goal is to enable rapid dissemination of high impact works to the scientific community.

Editor-in-Chief

Prof. Dr. Konstantinos Kontis
School of Engineering, University of Glasgow, James Watt Building South, University Avenue, Glasgow G12 8QQ, UK

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