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IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

Special Issue on
"Intelligent Sensing and Navigation Technologies for 6G"

Sensing stands as a foundational capability to address the diverse requirements of forthcoming 6G application scenarios, enabling the detection and recognition of environmental data. Modern Remote Sensing (RS) technologies offer broad observation ranges, swift speeds, and short period, finding widespread utility in agriculture, environmental monitoring, disaster prevention, mapping, urban construction, and management. Their deployment significantly enhances human productivity and quality of life. As communication and sensing technologies advance, the concept of Integrated Sensing and Communication (ISAC) has garnered attention, promising improvements in system spectrum efficiency, hardware utilization, and information processing efficiency while seamlessly blending sensing and communication functionalities. Navigation Sensing (NS) technology also plays a crucial role in this landscape. Moreover, to meet the demands of diverse future application scenarios, there's a growing concept of integrating communication, navigation, and remote sensing. In recent years, Artificial Intelligence (AI) has undergone continuous evolution, reaching the realm of perceptual intelligence. Leveraging AI in sensing scenarios holds the promise of substantially enhancing sensing capabilities and recognition accuracy. This special issue seeks contributions from researchers, practitioners, and scholars in relevant fields to showcase their research findings, delving into the current research landscape of 6G-assisted intelligent sensing technologies.

The broad topics include (but are not limited to):
- RS/NS information recognition based on lightweight deep learning models
- AI assisted/enhanced NS/RS technology
- Basic theoretical performance limitations of ISAC in 6G
- Performance analysis/optimization of Space-Air-Ground-Sea Integrated Networks supported by ISAC
- The ISAC and RS/NS with state-of-the-art wireless technologies (e.g., RIS，ambient backscatter, massive MIMO, mmWave/THz, privacy/security, NOMA, covert communication, etc.)
- Positioning, timing, and navigation of ISAC
- Centralized/distributed machine learning of ISAC and RS/NS
- ISAC and RS/NS system based on spectrum sharing
- Transfer learning and domain adaptation techniques for improving RS/NS sensing performance
- AI platforms, frameworks, and systems used to support sensing
- Development of a test bench for ISAC and RS/NS coexistence experiments

Schedule
October 1, 2024, Submission system opening
June 30, 2025, Submission system closing

Format
All submissions will be peer reviewed according to the IEEE Geoscience and Remote Sensing Society guidelines. Submitted articles should not have been published or be under review elsewhere. Submit your manuscript on http://mc.manuscriptcentral.com/jstars, using the Manuscript Central interface and select the "**Intelligent Sensing and Recognition Technologies for Remote Sensing**" special issue manuscript type. Prospective authors should consult the site https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9082768 for guidelines and information on paper submission. All submissions must be formatted using the IEEE standard format (double column, single spaced). Please visit http://www.ieee.org/publications_standards/publications/authors/author_templates.html to download a template for transactions. Please note that since Jan. 1, 2024, IEEE J-STARS, as a fully open-access journal, is charging a flat publication fee $1,496 per paper.

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