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

Special Issue on
"Deep Learning based Remote Sensing Small Target Detection and Recognition"

In the realm of remote sensing, object detection serves as the bedrock for image processing and computer vision, providing the groundwork for tackling complex visual tasks like segmentation, scene comprehension, object tracking, image description, and event detection. Specifically, the challenge of identifying and discerning small targets, those with minimal visual cues within images (typically below 32x 32), has persistently posed a formidable obstacle in small target detection and recognition. In practical scenarios, there are also some challenges and difficulties associated with remote sensing data sensing tools providing a poor performance of small target detection (visible, infrared, multispectral, hyperspectral, synthetic aperture radar and etc.). The prevalence of numerous small targets amplifies the significance of small target detection and recognition, expanding its potential applications across a broad spectrum within the remote sensing domain. Although deep learning emerges as a promising tool to address the challenges of small target detection, it encounters its own set of potential obstacles, ranging from the availability and quality of datasets to the intricacies of model development. For example, the quality of infrared image can affect the detection of small target and lead to low accuracy for following task of small object tracking. Furthermore, Variations in lighting, weather conditions, and environmental factors can further obscure small targets, impacting their visibility and detectability. These issues must be carefully considered and addressed to ensure that the benefits of advanced remote sensing small target detection recognition and AI technologies are realized in a fair and equitable way. This special issue toward leveraging deep learning for enhanced small target detection continues to navigate on the aspects of methodologies and application.

The broad topics include (but are not limited to):
- Small Target Detection, Segmentation, Tracking, and Recognition.
- Data Augmentation for Small Target
- GAN for Small Target
- Diffusion Model for Small Target
- Multispectral Image for Small Target
- Infrared Image for Small Target
- Hyperspectral Image for Small Target
- SAR for Small Target
- Multi-Modal Fusion for Small Target
- Prompt Learning for Small Target
- AI, IoT, and Blockchain for Small Target
- UAV Technology for Small Target
- Other Small Target Domains

Schedule
- Submission System Open: April 1, 2025
- Submission System Close: December 31, 2025

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 "**Deep Learning based Remote Sensing Small Target Detection and Recognition**" 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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