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

Special Issue on "Efficient Fusion of Multi-Source Remote Sensing Data"

Fusion of multi-source remote sensing data, including multi-temporal, multi-angle, multi-spectral, and active and passive sensing data, is an effective approach to improve the accuracy and robustness of remote sensing. In the last decades, the remote sensing industries of countries around the world have been developed rapidly, with a significantly increasing number of remote sensing sensors and multi-source remote sensing data explosion. The traditional implementation of fusion of multi-source remote sensing data includes data acquisition, downlink transmission, and ground-based data fusion processing, which results in low efficiency of information perception and decision-making, especially for urgent Earth observation tasks.

The recent development of space information network and the trend of deployment of edge computing devices at remote sensing sensors provide the opportunity to achieve the efficient multi-source remote sensing data fusion and real-time information perception and decision-making. However, most of existing high-performance multi-source remote sensing data fusion methods depend on powerful computation devices because of massive number of model parameters and complicated model structures therein. This limits the implementations of existing high-performance fusion methods on edge computing devices, like satellites or unmanned aerial vehicles. In addition, the classical lightweight fusion methods often suffer from obvious performance degradation. As a result, it is necessary to study the topic of efficient fusion of multi-source remote sensing data.

This special issue aims to collect outstanding contributions of recent state-of-the-art methods and hardware-implementations of efficient fusion of multi-source remote sensing data and will provide a platform to promote interdisciplinary research across remote sensing, information fusion, real-time processing and artificial intelligence. The broad topics include (but are not limited to):
- Efficient multi-source fusion imaging
- Efficient remote sensing image registration
- Knowledge-guided and efficient multi-source remote sensing data fusion
- Efficient object detection and recognition based on multi-source remote sensing data
- Efficient change detection based on multi-source remote sensing data
- Efficient and online training strategies for multi-source remote sensing data fusion models
- Neural architecture search methods for efficient fusion
- Efficient fusion of multi-source remote sensing data utilizing foundation models
- Efficient hardware implementations of efficient fusion methods

Schedule
March 1st, 2024, Submission system opening
December 30st, 2024, 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 "**Efficient Fusion of Multi-Source Remote Sensing Data**" 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 as of Jan. 1, 2020, IEEE J-STARS has become a fully open-access journal charging a flat publication fee $1,496 per paper.

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