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IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
Special Issue on
“Remote Sensing and Artificial Intelligence for Sustainable Agricultural Applications”

With the expanding population and climate change, it is critical to maintain sustainable agricultural development to provide the food, fibers, fuel, and raw materials for humanity. Remote sensing can capture agricultural monitoring data at different scales throughout the seasons, providing rich data source for AI-driven precision agricultural applications. Take images as an example, remote sensing data can be collected in agriculture by various platforms, e.g., airplanes, satellites, UAVs, with different types of sensors, e.g., multispectral, hyperspectral, synthetic aperture radar. Remote sensing and artificial intelligence can offer numerous benefits for sustainable agricultural applications, such as crop monitoring, yield prediction, soil health, irrigation water management, nutrient management, weed management, and climate change adaptation. However, there are also some challenges and difficulties associated with the use of remote sensing and artificial intelligence in sustainable agriculture. For instance, the quality of remote sensing data can vary depending on factors such as weather conditions and sensor resolution. Poor data quality can affect the accuracy of AI models and lead to incorrect management decisions. Besides, the data access to remote sensing data can be expensive, especially for high-resolution images. Furthermore, it is challenging to integrate remote sensing and AI into existing agricultural systems, and the agricultural data privacy and ownership are also sensitive. These issues must be carefully considered and addressed to ensure that the benefits of advanced remote sensing and AI technologies are realized in a fair and equitable way. This special issue seeks novel studies on advanced remote sensing and artificial intelligence for sustainable agriculture, on the aspects of methodologies and applications.

The broad topics include (but are not limited to):

- High-resolution remote sensing agricultural data acquisition and processing
- Data quality assessment and data mining in sustainable agricultural applications
- Communication protocols and technical methods for data privacy and security
- Integration of AI, RS, IoT and blockchain for sustainable agricultural applications
- Multi-source remote sensing data fusion for AI-based smart agricultural systems
- Efficient AI models compression and algorithms in smart agricultural systems
- AI algorithms with reduced power, energy, data, and heat for sustainable agriculture
- Specific applications based on remote sensing and AI, e.g., crop health status monitoring, plant disease detection, yield prediction, soil health, irrigation water management, climate change adaptation, etc.

Schedule

01 Jun 2023 Submission system opening

31 Dec 2023 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 “**Remote Sensing and Artificial Intelligence for Sustainable Agricultural Applications**” 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 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 \$1,250 per paper.

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