

Special Issue

Advancements in Remote Sensing Data Processing with Foundation Models

Message from the Guest Editors

Multimodal learning has emerged as a promising research direction. Integrating data from different sensors—such as optical, SAR, infrared, and hyperspectral—significantly aids in scene understanding, detailed target characterization, and long-term environmental monitoring. However, the scarcity of labeled data and the vast range of application scenarios remain inescapable challenges. Consequently, the industry is actively exploring strategies such as parameter-efficient tuning, self-supervised learning, and domain-aware optimization, with the core objective of minimizing reliance on labeled data and enabling models to adapt rapidly to new scenarios. Deployment is another issue that is very pressing but often overlooked. Computational power and energy on spaceborne platforms are extremely limited; no matter how powerful a model is, it is useless if it cannot run. Various approaches such as compression, distillation, quantization, neuromorphic computing, and hardware-aware design are being explored one by one, with the goal of enabling foundational models to truly operate and make decisions in real time in space.

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Message from the Editor-in-Chief

Remote Sensing is now a prominent international journal of repute in the world of remote sensing and spatial sciences, as a pioneer and pathfinder in open access format. It has highly accomplished global remote sensing scientists on the editorial board and a dedicated team of associate editors. The journal emphasizes quality and novelty and has a rigorous peer-review process. It is now one of the top remote sensing journals with a significant Impact Factor, and a goal to become the best journal in remote sensing in the coming years. I strongly recommend *Remote Sensing* for your best research publications for a fast dissemination of your research.

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