Special Issue

Robust and Trustworthy AI for SAR and Multi-Modal Remote Sensing Change Detection

Message from the Guest Editors

Remote sensing change detection is important for environmental and urban monitoring. Synthetic aperture radar (SAR) imaging is valuable for all-weather, day-and-night observation. However, SAR change detection remains challenging due to noise, limited labels, and domain shifts. Recent AI advances have improved change detection. However, many models perform well on benchmarks but lose reliability on real-world SAR and multi-modal data. Noise, sensor differences, and environmental variability limit operational use. Therefore, change detection methods must be accurate, robust, trustworthy, interpretable, and generalisable. This Special Issue focuses on speckle-robust, trustworthy, and generalisable AI for SAR and multi-modal change detection. We welcome research and reviews on robust deep learning, SAR–optical fusion, uncertainty modeling, explainable AI, self/weakly supervised learning, lightweight architectures, and real-world applications. The Special Issue encourages studies that move beyond benchmark accuracy to demonstrate reproducibility, interpretability, robustness, and operational relevance under challenging conditions.

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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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