Special Issue

Deep Learning and Multi-modal Data Processing for Geological Environment Remote Sensing Interpretation: Methods, Techniques and Applications

Message from the Guest Editors

In recent years, the rapid growth of multi-source remote sensing imagery, ground monitoring, and geological survey data has provided information on the geological environment. Deep learning techniques have showcased capabilities across various domains, including remote sensing, computer vision, and data processing. Integrating deep learning with multi-modal remote sensing data enhances our ability to understand and interpret elements of the geological environment for high-precision resource exploration, environmental monitoring, and natural disaster prediction, among other applications. However, in real-world scenarios, the geological environment elements are numerous and fragmented, with homogenization of features, blurred boundaries, and susceptibility to the limitations of remote sensing imaging quality and complex backgrounds, posing considerable challenges to interpreting the category of the geological environment elements. Understanding the synergies between deep learning and multi-modal data processing is essential for unlocking possibilities in geological environment data analysis and applications.

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