P-35 | Neuro-Cognitive Enhancement of Remote Sensing Image Classification

COA SHOWCASE

Weishan Bai

In the pursuit of building a better world, the integration of neuroscience and advanced technology offers innovative pathways to improve environmental monitoring and urban planning. This project explores the use of open-source EEG (electroencephalogram) data to enhance the classification of remote sensing images, providing a novel approach to analyzing complex urban environments. By simulating the relationship between EEG signals—representing human cognitive responses—and visual data, this work harnesses deep neural networks (DNNs) to classify remote sensing imagery more effectively. The DNN model is trained to process both EEG-derived features and spatial image data, achieving a more nuanced understanding of land use, environmental changes, and urban landscapes.

The classification of remote sensing images plays a critical role in urban design and planning, as it provides valuable insights into landscape patterns, infrastructure development, and ecological health. By incorporating neuro-cognitive data, this method proposes a more human-centered approach to analyzing urban environments, which could lead to more sustainable and informed decision-making processes. Ultimately, this project aims to contribute to the PLAN&DESIGN&BUILD theme by introducing a new perspective on remote sensing image analysis that reflects both technological advancements and human cognition.