Image Processing using CNN and RCNN

Abstract

This abstract summarizes a study on image processing utilizing deep learning techniques. The research focuses on addressing the challenges in analysing remote sensing images, considering diverse image properties, sensor capabilities, and environmental variables. The paper proposes and compares deep learning approaches, including developing a convolutional neural network feature extractor (CNN-FE) from scratch, transfer learning, and fine-tuning for land cover and land use (LCLU) classification. Results from the evaluation on the UCM dataset reveal that transfer learning and fine-tuning significantly improve classification performance, emphasizing the efficiency of leveraging pre-trained networks in remote sensing image analysis. The study contributes to the advancement of deep learning applications in environmental monitoring, agricultural decision-making, and urban planning.