Complexities in Remote Sensing-Based Object Detection and Interpretation

Shalini L
Department of Computer Science and Engineering, Bharath Institute of Higher Education and Research, Chennai, Tamil Nadu, India

Dr. Thirupurasundari D R
Department of Computer Science and Engineering, Bharath Institute of Higher Education and Research, Chennai, Tamil Nadu, India

Abstract

Detection of object is a fundamental part of processing images from remote sensing. Object analysis in aerial images generally covers the process of automatically identifying and localizing specific objects in satellite or aerial images, and addresses the challenges specific to remote sensing data, such as different scales, complex backgrounds, and spectral information, as well as state-of-the-art techniques. It primarily employs the approaches of deep learning like convolutional neural networks (CNN's) to classify and detect objects of interest accurately. The exponential growth of deep convolutional neural networks has significantly improved the detection of object in remote sensing images. However, it has a substantial amount of impact on the effectiveness of detector, when the scenario is complex and the dimensions of objects changes drastically. The techniques of deep learning for detecting objects in aerial images has many uses, including pavement extraction, urban building detection, and forest fire monitoring. It also offers robust assistance for agricultural management, environmental monitoring and urban development. We examine the difficulties that both deep learning and conventional approaches encounter. The complexity of various methods is also evaluated and examined with generic datasets of remote sensing aerial images.

Keywords

Remote Sensing, Aerial Images, Bounding Box Segmentation, Object Recognition, Deep Learning.