IAF EARTH OBSERVATION SYMPOSIUM (B1)
Interactive Presentations - IAF EARTH OBSERVATION SYMPOSIUM (IP)

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BUILDING DAMAGE ASSESSMENT USING HIGH-RESOLUTION SATELLITE IMAGERY

Abstract

Building damage assessment after natural disasters, such as earthquakes, volcanoes, and hurricanes, is essential for an appropriate and effective emergency response. Traditional survey fields to assess the severity of building damage caused by natural catastrophe is considered both time-consuming and labor-intensive. Remote sensing data are an efficient tool for mapping and identifying the affected areas after a disaster. For this research study, deep learning model is applied to assess and predict the damage levels for the buildings within the disaster affected region. The proposed methodology will be performed into two stages. Firstly, Deep Convolutional Neural Network (DCNN) is used for localizing and identifying the changes between pre and post disaster high-resolution images. DCNN will be trained using publicly available xBD dataset. Secondly, Support Vector Machine (SVM) classifier will be used to predict the damage levels of damaged buildings into four different levels; (no damage, minor damage, major damage, and destroyed). The performance of our model will be evaluated quantitatively and compared with other state-of-the-art building damage assessment techniques.