Water Body Detection and Estimation from Landsat Satellite Images Using Deep Learning

Authors : M. Devaki, K. B. Jayanthi

Abstract : The identification of water bodies from satellite images has recently received a great deal of attention. Different methods have been developed to distinguish water bodies from various satellite images that vary in terms of time and space. Urban water identification issues body manifests in numerous applications with a great deal of certainty. There has been a sharp rise in the usage of satellite images to map natural resources, including urban water bodies and forests, during the past several years. This is because water and forest resources depend on each other so heavily that ongoing monitoring of both is essential to their sustainable management. The relevant elements from satellite pictures have been chosen using a variety of techniques, including machine learning. Then, a convolution neural network (CNN) architecture is created that can identify a superpixel as either one of two classes, one that includes water or doesn't from input data in a complex metropolitan scene. The deep learning technique, CNN, has advanced tremendously in a variety of visual-related tasks. CNN can improve classification performance by reducing the spectral-spatial regularities of the input data and extracting deep features hierarchically from raw pictures. Calculate the water body using the satellite image's resolution. Experimental results demonstrate that the suggested method outperformed conventional approaches in terms of water extraction accuracy from remote-sensing images, with an average overall accuracy of 97%.

Keywords : water body, Deep learning, satellite images, convolution neural network
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