

EARTH OBSERVATION SYMPOSIUM (B1)
Earth Observation Data Management Systems (4)

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INTELLIGENT INTERPRETING SYSTEM OF HIGH RESOLUTION REMOTE SENSING IMAGE
BASED ON FULLY CONVOLUTION NETWORK

Abstract

The high-resolution earth observation system project of China will co-ordinate the construction of high-resolution geodetic systems based on satellites, stratospheric airships and aircraft, forming an all-weather, all-day, global coverage of ground-based observing capabilities. Intelligent interpretation of remote sensing images refers to the image detection, recognition and classification using computers, determining the object attributes or characteristics of the images. And then analyzes and describes the various structures and relationships in the image, and explains the attributes, categories and relationships of the images, explains the variation of the various objects in time and space and the correspondence between them. In this paper, a system of pixel-level classification based on fully convolutional neural network is proposed, which can solve the semantic level image segmentation problem effectively. The network can accept any size of the input image, using the deconvolution layer on the last convolutional layer of the feature map up-sampling. So the system returns to the same size of the input image, which can produce a prediction for each pixel, while also retains the original input image of the spatial information. Finally, the pixel-by-pixel classification is performed on the up-sampled feature map. Experiments on a large number of high resolution satellite imagery data show that the system is an end to end architecture, which can get the prediction results of each pixel.