ABSTRACT

Road extraction is the process of separating objects that represent roads in an image. In today's modern era, people's need for road information is increasing compared to before. Roads are needed for traffic management, humanitarian assistance, map updating, etc. To get the latest updates from Google Maps, it takes a long time and process because it uses manual methods for road extraction.

The solution offered to overcome this problem is to extract roads using deep learning. This solution was chosen because it is considered to be an effective tool to speed up the process of image and road object detection. The PSPNet (Pyramid Scene Parsing Network) model is used as it has a superior framework for pixel-level prediction. The model will be tested with two different datasets namely OBIA annotation dataset and digitized annotation dataset.

Tests are conducted with respect to hyperparameters such as learning rate, batch size, and epoch. The test results show that the model can extract roads with different datasets and can show accuracy results, performance in the form of IoU score, dice loss and predicted mask is also displayed at the end of the test. Testing the model using the OBIA annotation dataset shows less accurate image than the digitized annotation dataset because the model cannot predict well due to the OBIA annotation dataset still has noise.

Keywords: road extraction, PSPNet, OBIA annotation dataset, digitized annotation dataset