

Tree-Net for semantic segmentation on the VHR aerial images

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In this experiment, we proposed a Tree-CNN architecture which contains an automatically constructed tree-like block. It is based on a modified DeepUNet[1] architecture added by a tree-like block before output. The training data have 5 channels, including IR, RGB, and DSM images of the Potsdam dataset, no nDSM data.

BUCTY1: We use the DeepUNet we proposed to train on the dataset.

BUCTY3: We use the segmentation results of the DeepUNet(BUCTY1), to calculate the confusion tree block. And we use the TreeSegNet we proposed for training on the 18 images with ground truth labels(not all 24 images). The epoch is 50.

BUCTY4: We use the same net structure as BUCTY3. We find that the image numbers 7_10 have a lot of error annotations. So, it is removed from the training this time. The training set contains 23 images, except for 7_10. The epoch is also adjusted to 80.

BUCTY5: In order To verify whether our tree-like block will converge, this time we used the results of BUCTY4 to calculate the confusion matrix and build the new iterated tree block. And use the new tree-like block as the post-processing module for network.

Paper to come ...

[1] Li R, Liu W, Yang L, et al. DeepUNet: A Deep Fully Convolutional Network for Pixel-level Sea-Land Segmentation[J]. arXiv preprint arXiv:1709.00201, 2017.