Coding Assignment

Deadline 19th July 2022

1. Semantic segmentation and Classification of aerial imagery Using Deep Learning.

Dataset : https://drive.google.com/drive/folders/1TCGGXkT3y9mIK5WFBFSvrUh2W1fevZKB?usp=sharing

About Dataset : The dataset consists of aerial imagery of Dubai obtained by MBRSC satellites and annotated with pixel-wise semantic segmentation in 6 classes. The total volume of the dataset is 72 images grouped into 6 larger tiles. The classes are:

1. Building: #3C1098
2. Land (unpaved area): #8429F6
3. Road: #6EC1E4
4. Vegetation: #FEDD3A
5. Water: #E2A929
6. Unlabeled: #9B9B9B

Train and Test a Semantic Segmentation & classification Network

The steps for training a semantic segmentation network are as follows:

1. Analyze Training Data for Semantic Segmentation
2. Read the images from the respective directory
3. Pre-process the images
4. All images are of different sizes : crop them to nearest integer and divide all images into patches 256*256*3
5. Extract patches from each image
6. Then Patchify Mask : create patches of the mask images
7. Convert the HEX value to RGB value
8. Create a Deep Learning Model
9 Create a Semantic Segmentation Network
10- Train A Semantic Segmentation Network
11 Evaluate and Inspect the Results of Semantic Segmentation

Your Target should be to Get a Good IOU Value > 0.8