Road Damage Detection and Classification Using Mask R-CNN with DenseNet Backbone

This paper proposed a new network named DenseNet, linked with convolution networks into the Mask R-CNN framework. This method provides additional features such as alleviating the problem of vanishing gradients, increasing the proliferation of features, and promoting reuse of features. In a feed-forward fashion, DenseNet attaches every layer of the convolutional layers to each layer. This network is a region proposal network for region proposal generation. In this DenseNet, three neural network headers are used for road damage recognition, bounding box idea enhancements, and street defect classifying. Road damage can also be segmented at the pixel level. This paper added the new method, and It detects road damages precisely and can also segment the road damage mask correctly.

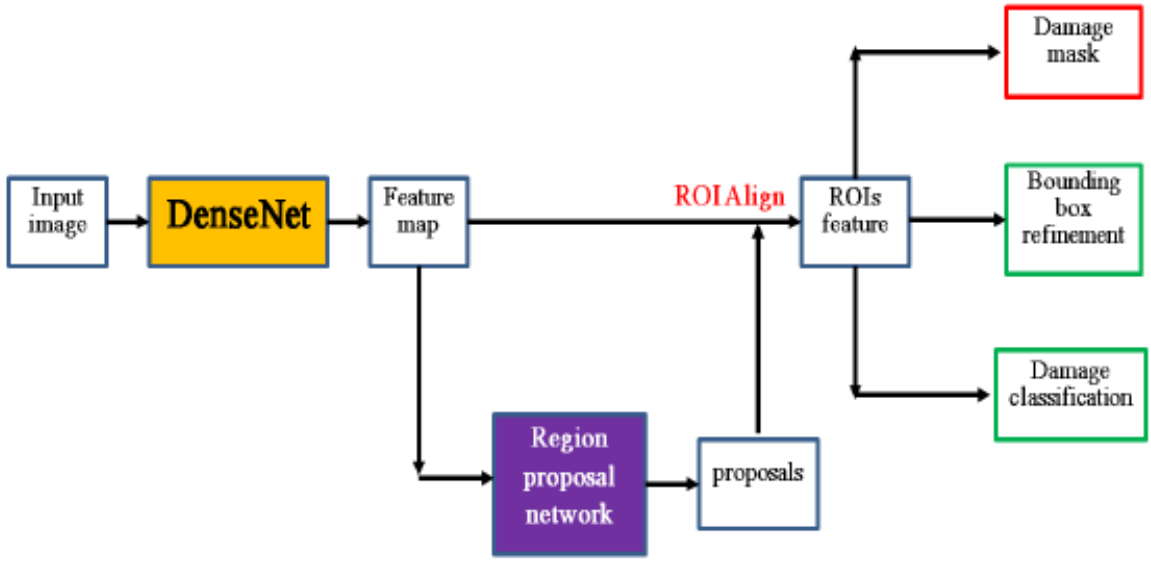

Figure 1. The proposed Mask R-CNN framework with DenseNet

This method has some errors in finding out cracks. Only the longitudinal linear crack damage is detected by this method. It is not feasible to work with goal project. The proposed project is not only to detect longitudinal linear crack damages. So, after analysis of this work, it needed more improvement for aim.

References:

[1] Chen, Q., Gan, X., Huang, W., Feng, J., Shim, H. (2020). Road Damage Detection and Classification Using Mask R-CNN with DenseNet Backbone. CMC-Computers, Materials & Continua, 65(3), 2201–2215.