Report

Dataset Information

- Dataset Used - Global Road Damage Detection Challenge 2020
- Total images in dataset - 20,000
- Self labelled - 600 images on pothole
- Total dataset created using augmentation - 1,03,000

Training Device information-

Google Colab

- CPU - 2vCPU @ 2.2GHz 1
- API used for training - Tensorflow model API
- RAM - 13GB RAM
- Storage Space - 100GB Free
- One time training time - maximum 12 hours
- GPU - 12GB **NVIDIA Tesla K80** GPU
- GPU memory - 12 GB

Training Logs

- Average accuracy on 100 images - `76 %`
- Model used - `FasterRCNN Resnet 101 backend`
- Training classification loss - `0.3`
- RPN loss - `0.7`
- Total Loss - `0.8`
- Time taken in training - `6 and half days(included hyperparameter tuning)`

Prediction logs

Device information

- CPU - `Intel(R) Core(™) i5-7300HQ CPU @ 2.5 GHz(4CPUs)`
- RAM - `8192MB`
- GPU - `Geforce GTX 1050 Ti`
- Graphics memory - `4018 MB`
- CUDA version - `9.1.85`
- First time load model time - `6.0625 sec`
- Processing time per image - `5.041015625 sec`

PCI Calculation

Weight Penalty	Defects	High	Medium	Low
2x	Pothole	3	2	1
1.5x	Alligator crack	3	2	1
1.5x	Longitudinal Crack	3	2	1
1x	Transverse Crack	3	2	1

Use this table to obtain the score of a single image.
PCI for the image = 10 - score/2

Example - 1 High severity pothole
1 Medium severity Alligator crack

Score = 3x2 + 1.5x2 = 9

PCI = 10 - 9/2 = 5.5

PCI Score Details

PCI	Remarks	Description
8-10	Excellent	Very smooth
6-8	Good	Smooth with a few bumps
4-6	Fair	Comfortable with intermittent bumps
2-4	Poor	Uncomfortable with frequent bumps
0-2	Very Poor	Uncomfortable with constant bumps