An Asphalt Damage Dataset and Detection System Based on RetinaNet for Road Conditions Assessment

Transfer learning is the use of the knowledge gained while solving one problem and applying it to a different but related problem. This paper introduced a new and very large asphalt dataset, containing damages that are not present in previous studies. For object detection, different types of models have been trained for mobile implementation. In this work, the RetinaNet object detector has been used. This system can detect different asphalt structural damages from video with high accuracy and low inference time.

RetinaNet is efficient for smartphone implementation. An additional advantage of RetinaNet is that it presents less jitter in the detection, owing to improved non-maximum suppression strategies and better performance.

Here, RetinaNet is used mainly for smartphone implementation. It can detect the damaged object on the asphalt road, but the proposed method work detects every road damage. It is here gaining some advantages of different types of feature extractors like VGG, Resnet. These can be used to improve further if work with a smartphone, then this RetinaNet will be useful.

References:

[1] Ochoa-Ruiz, G., Angulo-Murillo, A. A., Ochoa-Zezzatti, A., Aguilar-Lobo, L. M., Vega-Fernández, J. A., & Natraj, S. (2020). An Asphalt Damage Dataset and Detection System Based on RetinaNet for Road Conditions Assessment. Applied Sciences, 10(11), 3974.