IMAGE BASED DIAGNOSIS OF PLANT DISEASES USING DEEP LEARNING

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A dissertation submitted in partial fulfilment of the requirement for the Bachelor of Engineering (Honours) degree in Software Engineering

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in collaboration with
University of Westminster, UK

2020

Abstract

Advent of deep learning algorithms has revolutionized the field of computer vision. Image classification and object detection techniques based on deep learning has shown promise in many different domains ranging from self-driving vehicles to healthcare. However, adoption in the field of agriculture has been rather slow even though such technology would be invaluable in areas such as plant disease detection.

The problem of plant diseases is more prevalent in developing countries. Crop disease epidemics cause famines and economic losses in the developing world. With the lack of sufficient professionals to diagnose crop diseases farmers rely excessively on chemical pesticides. These can have acute health impacts on the consumers of these produce. This is exacerbated due to poor regulation on pesticides that lead to older and more toxic pesticides being used frequently.

The author sees that deep learning is an excellent way to democratize the tools of plant disease detection. If plant diseases can be diagnosed accurately and early on, control of these diseases could be attained with less chemicals. This would help the farmers financially due to less need of pesticides and more yield from crops. The reduction of chemical pesticides in food would reduce non communicable diseases in society at large.

Key Words: Plant Disease Detection**,** Computer Vision**,** Convolutional Neural Networks**,** CNN**,** Deep Learning