

**DETECTION OF AFFECTED AREA, PESTS AND CLASSIFICATION  
OF PESTS USING CONVOLUTIONAL NEURAL NETWORKS  
FROM THE LEAF IMAGES**

Mr. Alagiah Suthakaran

169336L



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## **DECLARATION**

I, Alagiah Suthakaran declare that the report entitled “Detection of affected area, pests and classification of pests using convolutional neural networks from the leaf images” and the work presented in it are done by myself. I confirm that:

- This work was done wholly or mainly while candidate for a master degree at this University;
- Where any part of this report has previously been submitted for a degree or any other qualification at this university or any other institution, this has been clearly stated;
- Where I have quoted from the work of others, the source is always given;
- I have acknowledged all main sources of help.

Signature: .....

Date : .....

### **Supervised by:**

Mr. Saminda Premarathne,

Senior Lecturer,

Faculty of Information Technology,

University of Moratuwa.

Signature: .....

Date : .....

## **ACKNOWLEDGMENT**

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## **ABSTRACT**

Pest infection is the most important problem on vegetable plants. One way to control the pest infection is to use proper pesticides. Early detection of the pest or the initial presence of pests is a key element for crop protection. The identification of the pest was done manually at the beginning. This takes time and also requires ongoing monitoring of experts. An automatic pest detection system is needed to examine the infestation and classify the type of pest. Today, there are many techniques and methods for identifying pests and detecting plant diseases. In these techniques, image processing techniques are very efficient and reliable. First, the proposed model detects whether the leaf is affected or not and calculates the affected area in the image. Next, the region of the detected pest and classification were performed using convolutional neural networks. The severity of the infection can be observed by calculating the percentage of the affected area, which leads to taking the appropriate measures.

**Keywords:** segmentation, region of interest, pest detection, convolution neural networks

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