

**Universiti Teknologi MARA**

**Image Classification of Aedes  
Mosquitoes Using Transfer Learning**

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**Thesis submitted in fulfillment of the requirements  
for Bachelor of Computer Science (Hons.)  
Faculty of Computer and Mathematical Sciences**

**July 2021**

## **ACKNOWLEDGMENT**

All praises to Allah and His Blessings for the completion of this project successfully. I would like to thank everyone who has contributed and participated whether directly or indirectly to the successful completion of this final year project.

First of all, I would like to express my sincerest gratitude to my final year project supervisor, Dr. Pradeep Isawasan, for his guidance, support, understanding, patience and most importantly, the knowledge and positive encouragement throughout the process of completing this Final Year Project. It was a great privilege and honour to work and study under his supervision.

My special thanks goes to all my family members, friends and other lecturers. It would have not been possible to complete this project without the endless support from them. I was blessed with various kinds of supports including mentally, financially and academically.

## ABSTRACT

The first and most important step in controlling the deadly air-borne diseases like dengue, chikungunya, Zika, and yellow fever is to track the spread of disease-carrying mosquitos. In recent years, the importance, and uses of computer vision, notably image classification, to tackle real-world issues have grown. With roughly 3,500 distinct species of mosquitoes on the planet today, classification is a time-consuming and difficult operation. The advancement and rapid growth of machine learning field should not overlook this issue. Transfer learning concept in machine learning has been shown to improve learning of the targeted task by extending the original algorithm with knowledge gathered from the initial training to improve the performance of new model. This project's model framework utilizes the concept of transfer learning by using pretrained models to classify images of Aedes Mosquitoes according to its species. The architecture is also evaluated based on the performance produced by experiments conducted using different combination of hyperparameters. In all combinations of the hyperparameters employed in the experiment, the use of the pretrained model MobileNetV2 for transfer learning surpasses the use of the pretrained model VGG16. The experimental results demonstrate the success of the model architecture to meet initial objectives of the project and be beneficial for future health workers, entomologists and potentially non-experts.

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