

UNIVERSITI TEKNOLOGI MARA

**Computer Vision for Hand Signal
Communication with Mediapipe and Support
Vector Machine (SVM)**

MUHAMMAD ASYRAF BIN MOHD KHAZAAI

BACHELOR OF INFORMATION TECHNOLOGY (HONS.)

JULY 2022

Universiti Teknologi MARA

**Computer Vision for Hand Signal
Communication with Mediapipe and Support
Vector Machine (SVM)**

Muhammad Asyraf Bin Mohd Khazaai

**Thesis submitted in fulfilment of the requirements for
Bachelor of Information Technology (Hons)
Faculty of Computer and Mathematical Sciences**

July 2022

SUPERVISOR'S APPROVAL

COMPUTER VISION FOR HAND SIGNAL COMMUNICATION WITH MEDIAPIPE AND SUPPORT VECTOR MACHINE(SVM)

By

MUHAMMAD ASYRAF BIN MOHD KHAZAAI

2019476076

This thesis was prepared under the supervision of the project supervisor, Muhammad Nabil Fikri Bin Jamaluddin. It was submitted to the Faculty of Computer and Mathematical Sciences and was accepted to partial fulfilment of the requirements for the degree of Bachelor of Science (Hons) Information Technology.

STUDENT'S DECLARATION

I certify that this report and the project to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

.....

MUHAMMAD ASYRAF BIN MOHD KHAZAAI

2019476076

JULY, 2022

ABSTRACT

This study utilized machine learning to design and assess the accuracy of computer vision for hand signal communication. The machine learning techniques used in this study include classification approaches that use Support Vector Machine (SVM) for picture categorization of hand gesture. In this research, Python, Artificial Neural Networks, Scikit-learn, and Mediapipe were also employed. This project will benefit handicapped persons who have communication challenges, or, to put it another way, people who have speech disorders. Regular individuals, as we all know, may say whatever they want and others will understand them; however, persons with speech disorders will find it difficult to communicate with normal people because they are unable to utilize their voice in the same manner that others do. As a result, the primary goal of this project is to make it easier for disabled and non-disabled individuals to communicate with one another.

Keywords: Hand signal communication, Computer vision, Machine learning, Python, Neural networks