Deep Learning-Based Technique for Sign Language Detection

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ABSTRACT

Sign languages are a form of communication used by the deaf and hard-of-hearing community. Malay Sign Language (MSL) is the official sign language practiced in Malaysia, enabling communication through hand signs and facial expressions. Each sign and its combination hold a distinct meaning, making it challenging for individuals to casually learn MLS. Therefore, this study presents an object detection model that utilizes the Single Shot Detector (SSD) and Mobilenet to detect MLS in real time. The model focuses solely on detecting static signs that do not involve complex combinations. The datasets used for training consist of 2000 sign images collected from Kaggle website, as well as images captured using a personal camera. The datasets were divided into training, validation, and testing phases in an 80:10:10 ratio, respectively. In conclusion, this study successfully developed a real-time and accurate system for recognizing MSL using the SSD-Mobilenet model. This contribution has significant implications for the field of sign language recognition and can greatly improve communication access for individuals who are deaf or hard-of-hearing.

KEYWORDS

Deep Learning, Mobilenet, Sign language detection, Single Shot Detector

ACKNOWLEDGEMENTS
This research was supported by UMP Grant RDU220379.

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