

Abstract

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CONVOLUTIONAL NEURAL NETWORK (CNN) AND LONG SHORT TERM MEMORY (LSTM) ALGORITHMS IN BISINDO SIGN LANGUAGE GESTURE DETECTION MODEL DEVELOPEMENT.

Thesis, Faculty of Industrial Technology, Department of Informatics, Gunadarma University, 2023.

Key Words : Algorithm, BISINDO, Detection, Model, Sign Language

(xiv + 62 + 46 attachments)

The body gesture detection model as a sign language translator is an artificial intelligence model designed based on the limitations faced by individuals with hearing impairments in the communication process with both fellow hearing-impaired and non-hearing-impaired individuals. One of the factors contributing to the emergence of these difficulties is the limited understanding of the sign language system used by hearing-impaired individuals among the general population, leading to frequent errors in conveying and comprehending information. This model is designed with the aim of facilitating the communication process by translating BISINDO sign language into readable text for users. The method used in the development of this research is the CRISP-DM (Cross Industry Standard Process for Data Mining) method, which consists of six stages: “Business Understanding”, “Data Understanding”, “Data Preparation”, “Modeling”, “Evaluation”, and “Deployment”. The Convolutional Neural Network (CNN) and Long Short Term Memory (LSTM) algorithms are implemented to construct this model and determine the algorithm that achieves the highest accuracy when implemented into the created model for performing the BISINDO sign language gesture detection process. The model designed using the Convolutional Neural Network (CNN) algorithm has the highest accuracy rate of 62.5%, while the model designed using the Long Short Term Memory (LSTM) algorithm has the highest accuracy rate of 87.5%. This program operates by detecting five BISINDO sign language gestures and translating them into readable text that can be structured into simple sentences.

Bibliography (2018-2023)