

## ABSTRACT

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### **INDONESIAN SIGN LANGUAGE (BISINDO) ALPHABET CLASSIFICATION USING A MEDIAPIPE HANDS-BASED MULTILAYER PERCEPTRON (MLP)**

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**Keywords:** Indonesian Sign Language (BISINDO), MediaPipe Hands, *Multilayer Perceptron* (MLP), *Classification*.

(xvi + 86 + Appendix)

Indonesian Sign Language (BISINDO) is the primary means of communication for Deaf individuals; however, many people in society still do not understand it. This study aims to classify the BISINDO alphabet using hand landmark coordinates extracted by MediaPipe Hands as input features for a Multilayer Perceptron (MLP) model. The research method follows the CRISP-DM framework, which includes Business Understanding, Data Understanding, Data Preparation, Modeling, Evaluation, and Deployment. The dataset was obtained by capturing BISINDO alphabet gestures using a camera, and the images were processed using MediaPipe Hands to extract *hand landmark* coordinates as model input features. The data were then normalized and divided into training, validation, and testing sets with a ratio of 70:15:15, followed by MLP model training. The evaluation was conducted using a confusion matrix, *accuracy*, *precision*, *recall*, and *F1-score*. The results show that the MLP model achieved an *accuracy* of 99,62% on the test data. The model was then implemented in the prototype application SIGMA (Sign Gesture System based on *Multilayer Perceptron* for BISINDO Alphabet Classification) developed using Streamlit to perform real-time BISINDO alphabet classification. Based on the evaluation results, the proposed model can classify the BISINDO alphabet and has the potential to support the development of sign language learning media.

References (2019-2026)