POSE DETECTION OF JURUS 1 TANGAN KOSONG IN THE SINGLES CATEGORY OF THE INDONESIAN PENCAK SILAT ASSOCIATION USING NEURAL NETWORKS

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ABSTRACT

Pencak silat is a traditional Indonesian martial art rich in cultural and aesthetic value. In the artistic category of pencak silat competitions, scoring is based on movement accuracy, stability, and expression. However, the subjective nature of the scoring system often leads to controversy and allegations of bias. This study proposes a pose detection system for "Jurus 1 Tangan Kosong" in the solo category of the Indonesian Pencak Silat Association using Neural Network algorithms, specifically MultiLayer Perceptron (MLP) and Convolutional Neural Network (CNN). Feature extraction uses Mediapipe to generate body landmark coordinates and keypoint images as model inputs. Training results show that the MLP model with landmark input achieves a validation accuracy of 0.85 and a loss of 0.75, while the CNN model with keypoint images suffers from overfitting. Further evaluation indicates that the MLP model performs well regarding precision, recall, and F1-score on the training data but struggles on new video data, especially in distinguishing between correct and incorrect poses. These findings highlight the potential of such models for automated scoring in pencak silat, although further improvements are needed to enhance accuracy and reliability.

Keywords: *Pencak silat, pose estimation, Neural Network, MLP, CNN, Mediapipe*.