

ABSTRACT

Improper jogging technique can increase the risk of injury and reduce energy efficiency, especially for amateur runners. This research aims to develop a deep learning-based pose estimation system to detect body posture and provide information on the classification of correct or incorrect jogging technique. The system is designed using Parallel Convolutional Neural Networks (CNN) and Long Short-Term Memory (LSTM) with a camera device and a Jetson Nano as an inference platform. The research focuses on detecting the position of the head, arms, knees, feet, and overall body posture to assist runners.

The research methods include video collection as a dataset, model training on a laptop, and inference implementation using the Jetson Nano. The system includes a video processing subsystem, pose estimation model training, and visualization of the analysis results in the form of body keypoints. This research is expected to provide an applicable solution to support safer and more efficient running training by utilizing computer vision-based pose estimation technology.

Keywords: Pose Estimation, Deep Learning, CNN, LSTM Jetson Nano, Jogging Technique.