

ABSTRACT

Computer Vision Syndrome (CVS) is a health issue that often arises from poor posture during prolonged computer use. This study aims to design and develop a real-time posture detection and classification prototype that can provide alerts to users to prevent the risk of CVS. The system utilizes the MediaPipe framework for pose estimation, which extracts body keypoint coordinates to serve as input for a Multi-Layer Perceptron (MLP) classification model. The model is specifically trained to recognize four posture categories: ideal posture (looks good), misaligned head (straighten head), excessive leaning (sit up), and slouched shoulders (shoulders back).

Testing results show that the developed MLP classification model is effective, achieving an accuracy of 88%. The model is then implemented into a web application connected to a camera that processes real-time video input. This prototype displays text alerts directly on the screen when detecting non-ideal user postures. With its real-time alert feature, the prototype offers a practical solution to help users improve and maintain healthy posture, thereby reducing the risk of CVS.

Keywords— *Computer Vision Syndrome, Pose Estimation, Posture Detection, Computer Vision, MLPClassifier*