Model Development for Real-Time Human Sitting Posture Detection Using a Camera

Authors : Jheanel E. Estrada, Larry A. Vea

Abstract : This study developed model to detect proper/improper sitting posture using the built in web camera which detects the upper body points' location and distances (chin, manubrium and acromion process). It also established relationships of human body frames and proper sitting posture. The models were developed by training some well-known classifiers such as KNN, SVM, MLP, and Decision Tree using the data collected from 60 students of different body frames. Decision Tree classifier demonstrated the most promising model performance with an accuracy of 95.35% and a kappa of 0.907 for head and shoulder posture. Results also showed that there were relationships between body frame and posture through Body Mass Index.

Keywords : posture, spinal points, gyroscope, image processing, ergonomics

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