Classification of Yoga Posture Using POSENET

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Abstract: *Yoga which originated in India is a way of exercise to bind your spiritual (Mental Health) as well as Physical (body) in proper coordination of their respective functionality. Indian-origin yoga is mainly for the maintenance of health in many countries all around the world. Therefore the yoga posture of the body is an important factor that affects health. Many doctors suggested Yoga to be beneficial for the speedy recovery of the injuries also because the best tool to fight against mental-health problems like Depression, Anxiety , Post-traumatic stress Some of the Yoga Practitioners do not perform their yoga posture properly which leads to many body problems like pain in the joints, disc-misalignment, shoulder pain, etc. According to the study report of researchers nearly 87% of musculoskeletal pain or worsen injuries and more than 10 percent said yoga had cause pain in their hands, wrists, shoulders and elbow. There are various systems which work on yoga pose detection which uses open pose, pose net and various classification models such as CNN, random forest etc. Most of these systems work on static images and detect the key points from a body. However there is hardly any system that uses the real time videos of the user. So we are proposing a system which will feature artificial intelligence and machine learning. We are introducing an online Android application for classification and rectifying your Yoga. Application will be created using android studio IDE, flutter, which is an open-source UI software development kit. It will analyze your body movements when you are performing yoga using Pose Net and CNN as a classification model with a trigger warning mechanism. Posenet is a real-time pose detection technique. We are using posenet to detect human beings poses in an image or videos. Programming language we are using is Dart, which is used to create flutter applications. The T ensorflow created Pose Net model extracts the key points from the user camera and passes the output as an input to the custom created classification model using TensorFlow Lite and ML-Kit to predict the posture performing. If the posture fails during the time the buffer system is introduced, it will restart your performing stance and will make you do that again until it gets properly synchronized and classified.*

Keywords: AI, Machine Learning, Android Studio, Flutter, Posenet, CNN, Dart, Tensorflow

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