

Virtual Yoga Assistant using Machine Learning and Artificial Intelligence

Gayatri Pendhari¹, Amruta Potphode², Swati Jagtap³, Nikhil Lawale⁴, Dr. Swati A. Bhavsar⁵
Department of Computer Engineering
Matoshri College of Engineering and Research Center, Eklahare, Nashik

Abstract: *In recent years, yoga has become part of life for many people across the world. Due to this there is the need of scientific analysis of y postures. It has been observed that pose detection techniques can be used to identify the postures and also to assist the people to perform yoga more accurately. Recognition of posture is a challenging task due to the lack availability of dataset and also to detect posture on real-time bases. To overcome this problem a large dataset has been created which contain at least 5500 images of ten different yoga pose and used a tf-pose estimation Algorithm which draws a skeleton of a human body on the real-time bases. Angles of the joints in the human body are extracted using the tf-pose skeleton and used them as a feature to implement various machine learning models. 80% of the dataset has been used for training purpose and 20% of the dataset has been used for testing. This dataset is tested on different Machine learning classification models and achieves an accuracy of 99.04% by using a Random Forest Classifier.*

Keywords: YOGI - YOga Gesture Identification dataset, Computer Vision, Machine Learning, Classification, Gesture Recognition

REFERENCES

- [1] Muhammad Usama Islam ; Hasan Mahmud ; Faisal Bin Ashraf ; Iqbal Hossain; Md. Kamrul Hasan "Yoga posture recognition by detecting human joint points in real time using microsoftkinect." IEEE Region 10 Humanitarian Technology Conference (R10-HTC).pp.1-5, 2017.
- [2] Hua-Tsung Chen, Yu-Zhen He, Chun-Chieh Hsu, Chien-Li Chou, SuhYin Lee, Bao-Shuh P. Lin, ""Yoga posture recognition for selftraining." International Conference on Multimedia Modeling.Springer, pp.496-505, 2014.
- [3] Xin Jin ; Yuan Yao ; Qiliang Jiang ; Xingying Huang ; Jianyi Zhang ; Xiaokun Zhang ; Kejun Zhang, "Virtual personal trainer via the kinect sensor" IEEE 16th International Conference on Communication Technology (ICCT). pp.1-6, 2015.
- [4] Pullen, Paula, and William Seffens. "Machine learning gesture analysis of yoga for exergame Development." IET Cyber-Physical Systems: Theory Applications, vol.3, no.2, pp.106-110, 2018.
- [5] Trejo, Edwin W., and Peijiang Yuan. "Recognition of Yoga poses through an interactive system with Kinect device." 2nd Inter- national Conference on Robotics and Automation Sciences (ICRAS), 2018.