

# Virtual Yoga Assistant using Machine Learning and Artificial Intelligence

Gayatri Pendhar, Amruta Potphode, Swati Jagtap, Nikhil Lawale, Dr. Swati A. Bhavsar

Department of Computer Engineering

Matoshri College of Engineering and Research Center, Eklahare, Nashik, Maharashtra, India

**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 microsoft kinect." 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, SuhYinLee, 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 ; XiaokunZhang ; Kejun Zhang, "Virtual personal trainer via the kinect sensor" IEEE 16<sup>th</sup> 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 International Conference on Robotics and Automation Sciences (ICRAS), 2018.