FINAL YEAR PROJECT REPORT

YOGGUIDE: DETECTING, RECOGNIZING AND TRACKING YOGA POSES USING VISION TECHNIQUES

In fulfillment of the requirement
For degree of
BS (COMPUTER SCIENCES)

By

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SUPERVISED

BY

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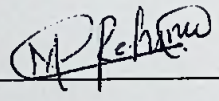
BAHRIA UNIVERSITY (KARACHI CAMPUS)
FALL-2020

DECLARATION

We hereby declare that this project report is based on our original work except for citations and quotations which have been duly acknowledged. We also declare that it has not been previously and concurrently submitted for any other degree or award at Bahria University or other institutions.

Signature : 

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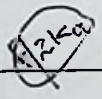
Signature : 

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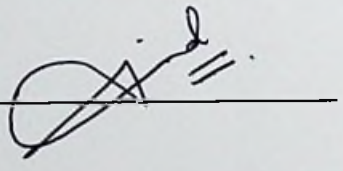
APPROVAL FOR SUBMISSION

We certify that this project report entitled **"YOGGUIDE: DETECTING, RECOGNIZING AND TRACKING YOGA POSES USING VISION TECHNIQUES"** was prepared by **Azka Khan(48435)** and **Muzna Rehman(48467)** has met the required standard for submission in partial fulfilment of the requirements for the award of Bachelor of Science (BSCS) at Bahria University.

Approved by,

Signature : 

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Date : Sunday, 13 December

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In addition, we would also like to express our gratitude to our loving parent and friends who had helped and given us encouragement.

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ABSTRACT

In computer vision, human pose estimation is a deep-rooted issue that in the past has revealed many challenges. In many fields such as security, video games, physical therapy, etc. analyzing human activities is beneficial. One of the challenges in human pose estimation is Yoga. These days, with stress and pressure full lives, people generally prefer doing yoga at homes as yoga is said to be art of relaxation, but they feel an instructor's need to evaluate their exercise form as doing wrong posture can cause health problems. Since these resources are not always available, human pose recognition can be used to create a system of self-training exercise that allows individuals to better learn and practice exercises by their own.

This project objective is to develop an application which is an attempt to ensure correct yoga posture for three main poses which includes plank, warrior and pose reverse warrior in an intuitive way. This project uses deep learning technique for pose estimation in which different stages are involved including pre-processing stage, data augmentation, creating CNN model and training the model. Yoga-guide's ultimate aim is to use pose recognition as a tool to allow a person to practice different poses of yoga and classify the pose.

In this project, using convolution neural network (CNN) model using Keras with TensorFlow as backend a deep learning model is proposed. The key benefit of using this technique is that it offers extraction and identification of features that are appropriate for pose recognition. We are able to achieve accuracy of 97%.

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