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BCI:3006

BIOMETRICS

Review-Report

Members:

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In our project, Stress Detection Using Face Recognition, we use affective computing (AC) which makes use of face recognition technology to recognize the affective state of a person. Stress is a significant problem and is a growing issue that has become an inescapable part of our daily lives. Early detection of stress will decrease the damage it causes and prevent it from being chronic.

So initially, we came up with a medium blog based on Stress detection using API. In the blog, we learnt 2 things that had to be done to make a fully working model:

1. Training the dataset using Convolutional Neural Networks
2. Testing the model using live stream

Then we collectively had a discussion on our topic and then divided our work to complete the project within the given time frame.

Shashwat did the research on Datasets that involved finding a rich enough dataset to let you play with it, and see some common phenomena and finally came up with Kaggle FER-2013 which was tested to make the model and gave a decent accuracy and thus was chosen! Kaggle FER-2013 is an open-source dataset that has a total of 33,887 grayscale images classified into 7 classes of emotions. These 7 emotions are — Happy, Angry, Sad, Disgust, Surprise, Fear and Neutral.

Disha explored various libraries and tools that could be used to achieve the task of training and testing the dataset. These libraries are a set of useful functions that eliminate the need for writing codes from scratch, they also help in smooth implementation and reduce time for coding and debugging and thus play a vital role in any project. Some of these used in our project are - Pandas, Matplotlib, Keras, TensorFlow, Imutils and Dlib.

Anannya did the research work on understanding the concept of convolution neural networks which plays a very crucial role in building the fundamental basis of facial recognition. CNN was the algorithm that was accomplished in order to classify facial emotions which further encouraged the evaluation of a stress value calculating formula leading to the final estimation of a stress value.

Maulik imported the dataset installed libraries locally to run them on Jupyter,debugged the errors and then compiled the codes to process the videos, train the model and test the model.

Besides all the individual contributions, we all sat down together every time to ideate, discuss details and resolve the errors that occurred throughout the duration of our project.

We would like to thank our Teacher Prof Sharmila Banu K who gave us this opportunity and necessary motivation by always talking about innovations and delighting us with quotes in every class that we were able to conclude our project! Thank You Mam!

[Link to the Output]