Project Abstract
Avatars For Your Expressions

What is the project about?

A human-computer interaction system that recognises facial emojis is known as facial emoji recognition. Researchers in psychology, computer science, linguistics, neurology, and other areas have recently been more interested in automatic face recognition or facial expression recognition.

Facial emoji recognizer is a user-facing programme that recognises a person's emotion in a video taken by the camera. On the screen, a smiley that corresponds to the person's expression in the video is displayed, which varies as the emotions change.

Necessary libraries

- Keras
- numpy
- tkinter
- openCV
- pillow

Brief walkthrough of how we are going to implement things

- First we will try finding a dataset which is varied with different facial expressions like angry, disgust, feat, happy, sad, surprise, natural.
- Then after we will start working on the code and try to get good references for the same.
- In this project, we will build a convolution neural network to recognize facial emotions.
- We will then train our model on the dataset.
- Then we shall map those emotions with the corresponding emojis or avatars.
- Using OpenCV's haar cascade xml we will get the bounding box of the faces in the webcam.
- Then we will feed these boxes to the trained model for classification.

Small rough timeline for two weeks

- Starting 3 days we are going to learn about the libraries which we are going to use in detail.
- Then we will try to find a good dataset that may take some time.
- Then we will start implementing and try completing the code in the remaining one week.

Things we need to learn that weren't part of the courses are:

- Interact with REST APIs using Python and build a currency converter!
- Automate extracting data from websites using web scraping libraries like Selenium and Beautifulsoup and Selenium.
- Learn how to create simple GUI applications with python and Qt.
- Learn face detection using openCV Python.

Motivation

The motivation for this project is to classify and map human face emotions to emojis. To identify facial emotions, we'll use a convolutional neural network. Then we'll match those feelings to the appropriate emojis or avatars.

The goal was to create an intelligent system that used the CNN algorithm to classify facial expressions. Face detection is done with the HAAR classifier, and expression detection is done with the CNN method, with the emoticon related to the expression as the output.