PROJECT PROPOSAL

Title: FACE RECOGNITION

TEAM MEMBERS:

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Project Goal and Objectives:

- The main idea of this project is to identify a person's mood and gender using their facial expression and provide particular features according to their mood. We plan to implement Real time face detection and emotion/gender classification.

- We will input an image which can be fed to our model that detects the emotion and classifies the image, whether the person in the image is happy, sad, angry or surprised. Along with that we can also recognize the gender of the person in the image. We plan to implement Real time face detection and emotion/gender classification.

Motivation:

- Getting into machine learning is not an easy task. Many aspiring professionals and enthusiasts find it hard to establish a proper path into the field, given the enormous amount of resources available today. The field is evolving constantly, and it is crucial that we keep up with the pace of this rapid development. In order to cope with this overwhelming speed of evolution and innovation, it is advisable to stay updated and knowledgeable on the advances of ML. For our current project, interpreting correctly any of the elements using Machine Learning techniques has proven to be complicated due to the high variability of samples within each task. Human accuracy for classifying an image of a face in one of 7 different emotions is 65%+_5%. We can observe the difficulty of the task by trying to manually classify the dataset images within the following:

{angry, sad, happy, surprise, neutral, disgust, fear}.

Uniqueness:

- Our conclusion is interpreted at the end of particular amount of time using Real time face recognition is the Unique feature of the application. It is all what we do with the collected information every time once a user uses the application.

Objectives:

- We plan to develop a vision system that performs **Face Detection, Gender Classification and Emotion Classification** in a single integrated module. We plan to use a single CNN that can leverage modern architecture constraints

- We plan to present a visualization of the learned features in the CNN using the guided back propagation visualization. This technique is able to show us the high-level features learned by our model.

SYSTEM FEATURES:

- Real time Face detection: Web Camera
  Here we will be taking a live image from the system web camera in order to classify the image as required
- Image as an input:
  We can upload the image as the input to the application. After analyzing the image, the emotions are predicted, and the conclusion is shown.
- Precise Conclusion: Open CV
   Deep analysis of data and the high definition data taken as the input will make this possible

Technologies

- Python
- Open CV
- Pandas
- Numpy
- Statistics
- Tensor Flow