

Capstone Project

Face emotion recognition

CONTENTS

- **Problem Statement**
- **Data Summary**
- **Model Training**
- **Evaluation Of Model**
- **Deployment**
- **Challenges**
- **Conclusion**
- **Future work**

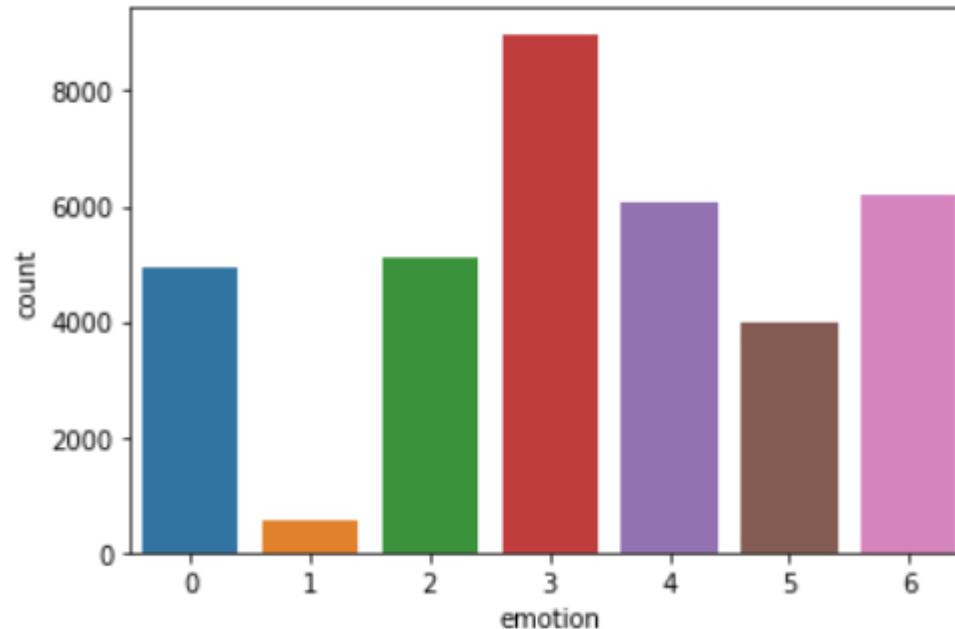
PROBLEM STATEMENT

Face detection has been around for ages. Taking a step forward, human emotion displayed by face and felt by brain, captured in either video, electric signal (EEG) or image form can be approximated. Human emotion detection is the need of the hour so that modern artificial intelligent systems can emulate and gauge reactions from face. This can be helpful to make informed decisions be it regarding identification of intent, promotion of offers or security related threats. Recognizing emotions from images or video is a trivial task for human eye, but proves to be very challenging for machines and requires many image processing techniques for feature extraction. Several machine learning algorithms are suitable for this job. Any detection or recognition by machine learning requires training algorithm and then testing them on a suitable dataset.

DATA SUMMARY

Dataset name – Kaggle FER 2013

Shape– 35,775 images belonging to 7 class

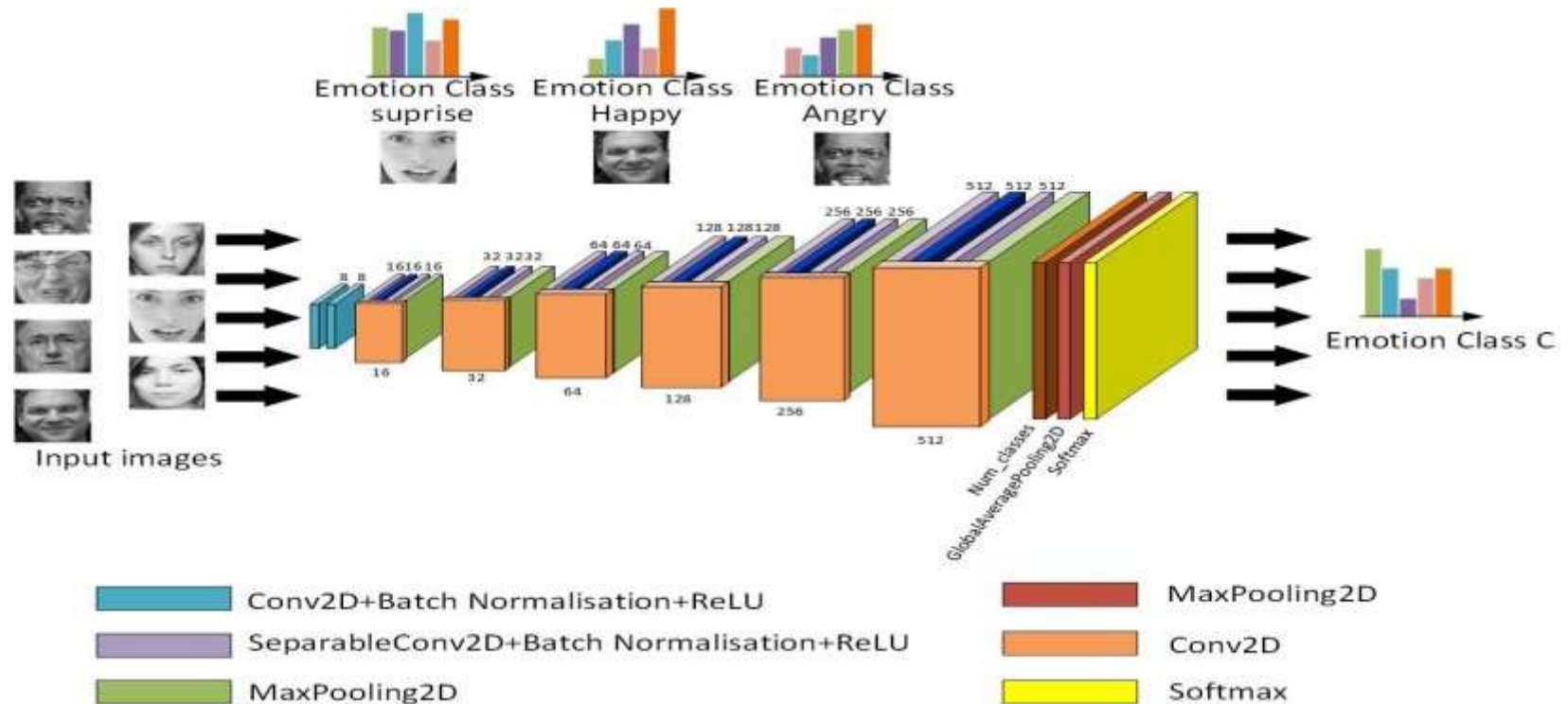


MODEL TRAINING

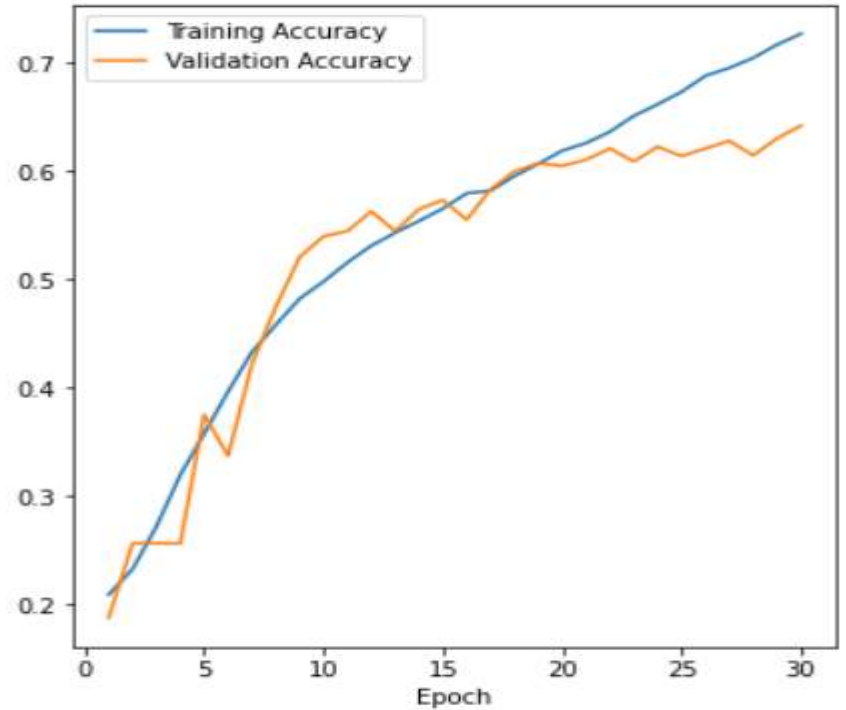
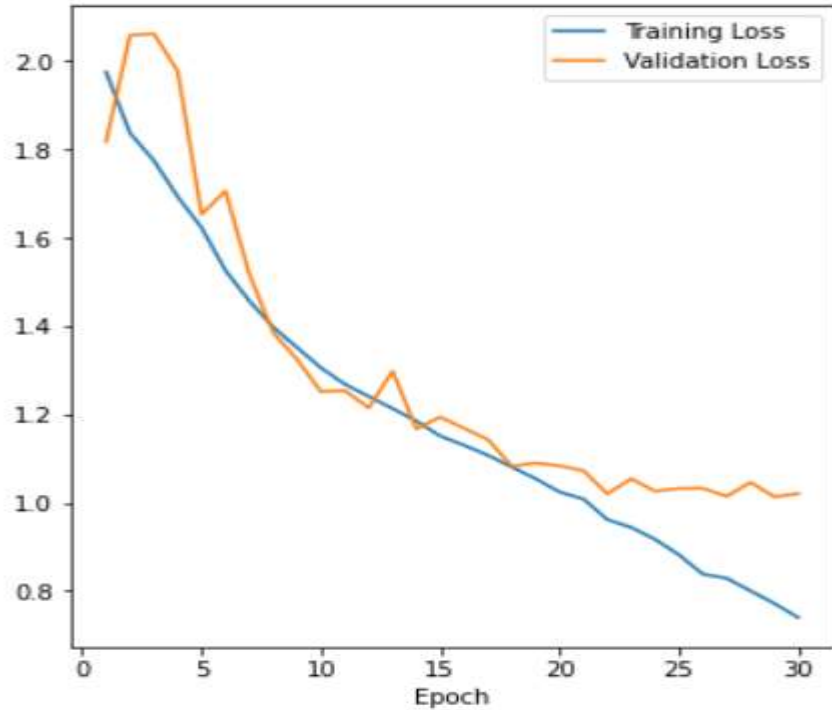


Deepface is a lightweight [face recognition](#) and facial attribute analysis ([age](#), [gender](#), [emotion](#) and [race](#)) framework for python. It is a hybrid face recognition framework wrapping **state-of-the-art** models: [VGG-Face](#) , [Google FaceNet](#) , [OpenFace](#) , [Facebook DeepFace](#) , [DeepID](#) , [ArcFace](#) and [Dlib](#) . Those models already reached and passed the human level accuracy. The library is mainly based on Keras and TensorFlow.

MODEL TRAINING

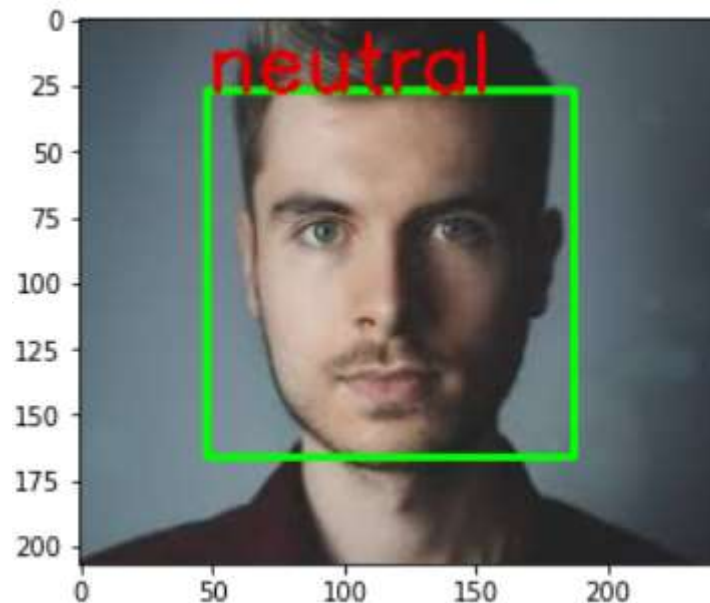
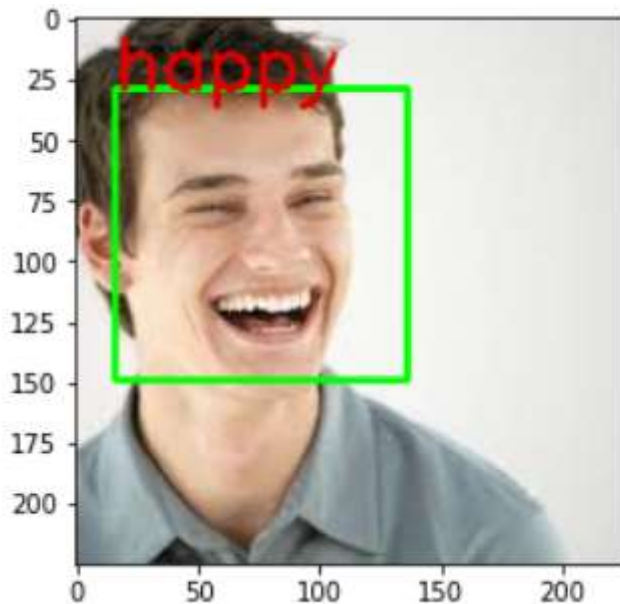


EVALUATION OF MODELS



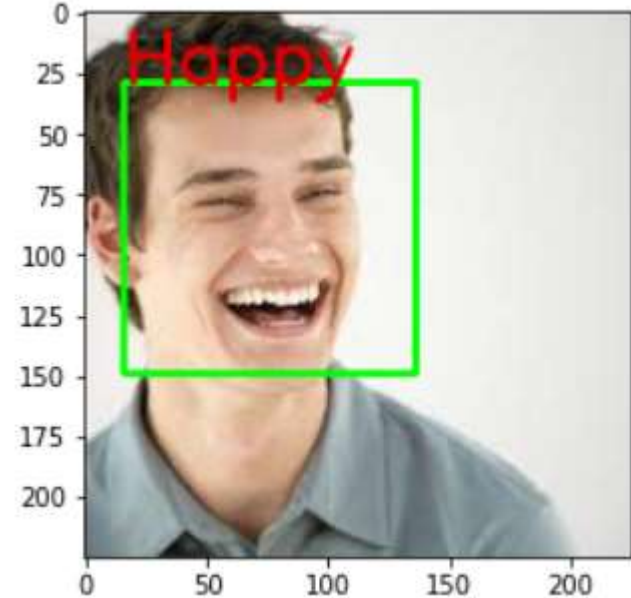
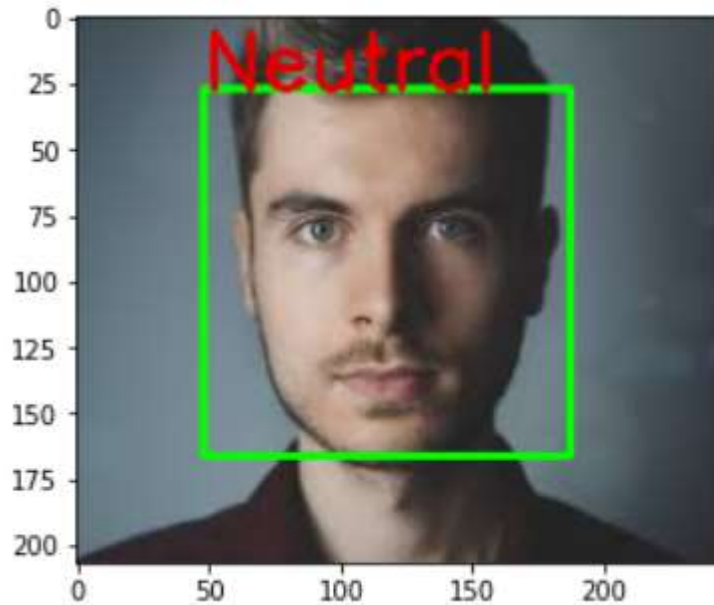
EVALUATION OF MODELS

Deepface



EVALUATION OF MODELS

CNN model



DEPLOYMENT

- **GCP**
- **Netlify**
- **Streamlit**
- **Azure**
- **Heroku**

CHALLENGES

- **Size constraint**
- **System constraint**
- **Deployment**
- **Time constraint**
- **Experience**

CONCLUSION

- It was a great experience to work on this project
- The web app can be use to detect facial emotions
- This project made me realized how much experience matters

FUTUREWORK

- Can improve the efficiency
- Different approaches can be used to handle the data and in using different algorithms
- Can be deployed in paid platform to improve the speed