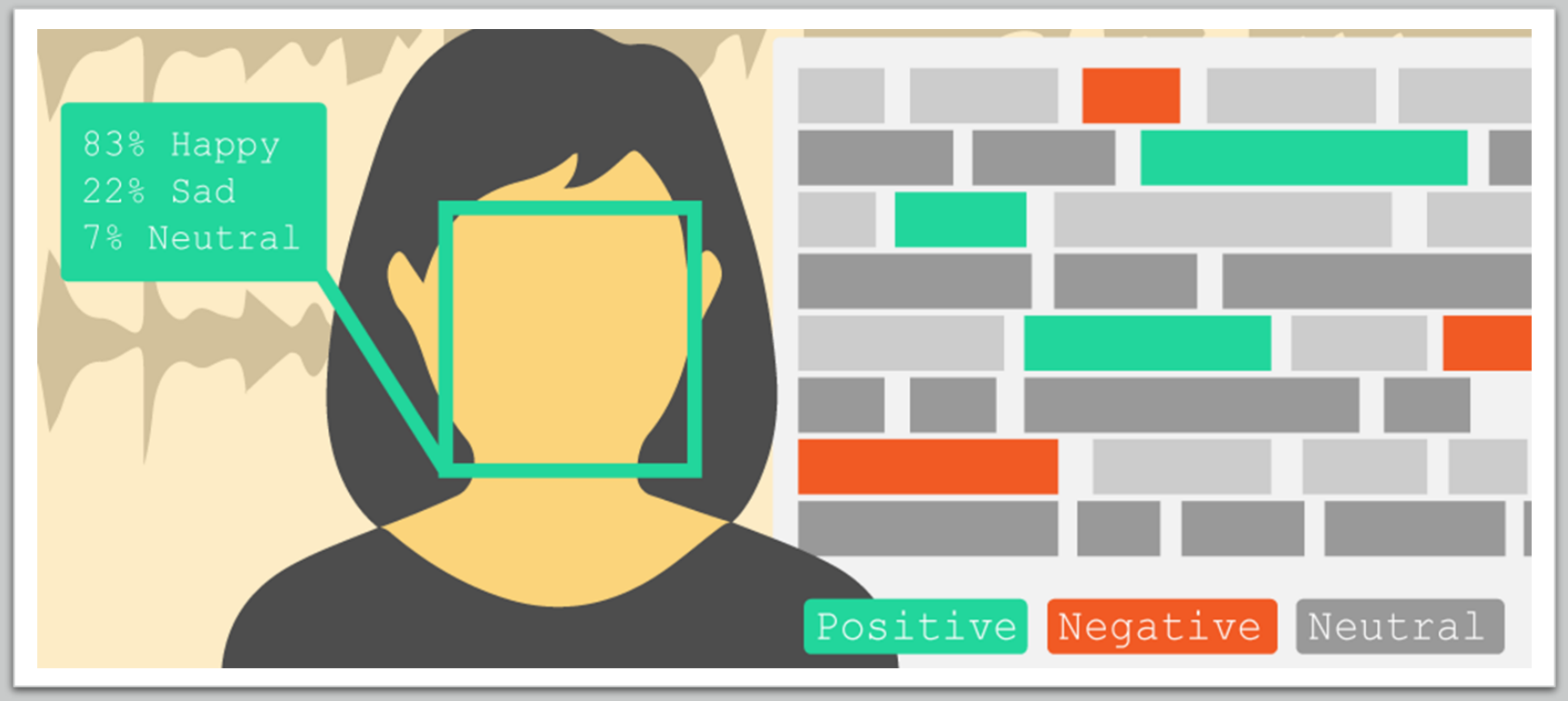


P3 Project Proposal

Emotion Image Classification

Course

CSCE 5214 (FALL 2020)

Participants

Blake Myers
Naga Sumanth Vankadari
Ngoc Phan
Sanjib Paudel

Project Name, Participants, & Workflow

Project name

- Emotion Image Classification

Participants

- Blake Myers | blakemyers@my.unt.edu
- Naga Sumanth Vankadari | nagasumanthvankadari@my.unt.edu
- Ngoc Phan | ngocphan@my.unt.edu
- Sanjib Paudel | sanjibpaudel@my.unt.edu

Workflow

- Weekly meeting on Discord every Saturday and/or Sunday morning.
- Team members are splitted into two groups
  - Blake and Naga collect datasets and train emotion image classification models
  - Ngoc and Sanjib work on the front-end

GitHub

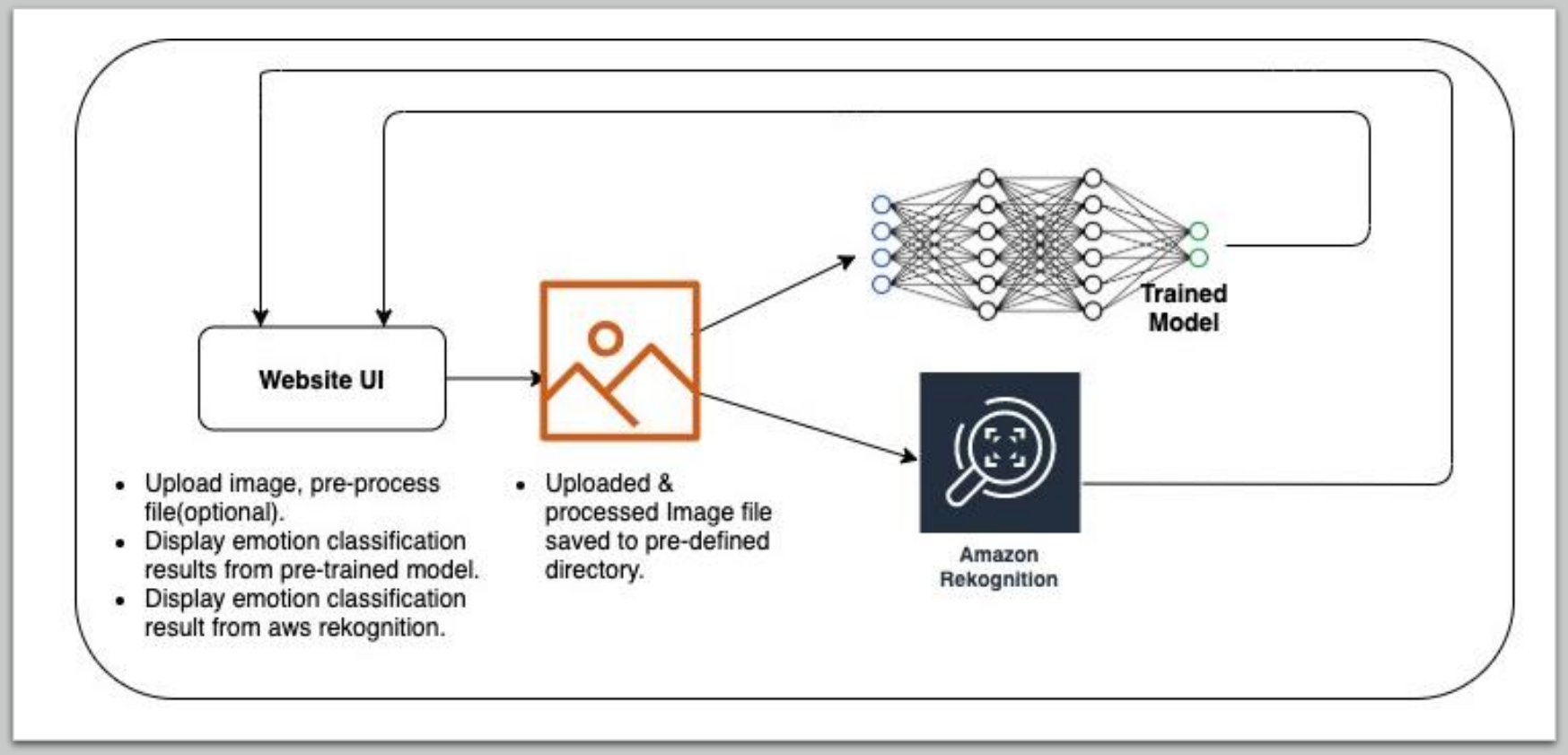
- https://github.com/UNT-5214-P3/EmotionRecognition

Project Abstract

Our project will involve working with *Emotion Recognition* to identify sentiments on human face. *Emotion recognition* is widely used by different companies to gauge consumer mood towards their product or brand.

We will be using the datasets available from Kaggle and build our model based on Keras Conv2D. We will be building a website that lets user upload an image and backend will get the emotion recognition classification result from (1) trained model and (2) AWS Rekognition API.

Optional: We also plan to display results from more than one trained model and see if there is a way to draw analogy programmatically between different results.


Website UI
Trained Model
Amazon Rekognition
• Upload image, pre-process file(optional).
• Display emotion classification results from pre-trained model.
• Display emotion classification result from aws rekognition.
• Uploaded & processed Image file saved to pre-defined directory.

Overview

Project Design

- Technologies
  - Flask API to work with server-side Python
  - Programming languages
    - Python, HTML, CSS, JavaScript
  - Modules
    - matplotlib, seaborn, numpy, pandas, pillow, keras
  - Cloud platform
    - AWS Rekognition API

Milestones

- Milestone 1 (Due on 10/21/2020)
  - Search for related tutorials and datasets
  - Run the tutorials that train the deep learning model for emotion image recognition
  - Set up Flask app locally
  - Work on P3 Proposal
- Milestone 2 (Due on 10/28/2020)
  - Deploy models on Flask app
  - Work on P3 Video Update
- Milestone 3 (Due on 11/4/2020)
  - Deploy web app on the Cloud
  - Test application
  - Work on P3 Report and Video Presentation.

Resources & Related Projects

Emotion Detection: a Machine Learning Project

- A tutorial that goes through a few different machine learning models (K-nearest neighbors, MLP, and a CNN model), all of which predict emotion on the basis of an image of a person's face.

Emotion detection using VGG16

- A tutorial that builds a machine learning model to predict emotion from faces using Keras and VGG16.

fer2013 dataset

- A dataset with 20,000 images of facial expressions that are distributed equally across five emotions (angry, happy, sad, surprised, and neutral).