

OUTLINE

Tasks for the project

1. Detect faces in the video
2. Perform face tracking by correctly associating a face detection in the previous frame to a face detection in the current frame.
3. Train a classifier that matches each of the face with a face from the data set we provide, produce a softmax prediction, show the predicted name near the face
4. For each frame add a new prediction toward the existing prediction list, classify the face as the majority of predictions
5. User can provide a face that to be tracked, and if no such input is provided the application simply track all the faces appeared in the video
6. If such input is provided, other than face detection we also perform a motion detection on the target and show a path for where the target has traveled

DIFFICULTIES:

1. For step 4 we need to keep track of faces we have detected in each frame, which might be hard
2. Instead of using existing motion tracking module (e.g. cv2.findcontours) we will implement our own, this might require machine learning.
3. We need to provide our own data set

JUSTIFY THE SCOPE:

Compare to sample project 1, we will not train a binary class classifier but instead a multi-class classifier, and we aim to produce more stable prediction by averaging over all previous predictions, and more than this if a target face is provided we will do comparison on each face and find best match and then do a motion tracking.

WORK DISTRIBUTION:

Yue Wang: Motion Tracking

Jue Wang: Face Detection

Ziqi Chen: Face Recognition

HOW TO EXPAND:

Instead of using existing motion tracking modules we will implement and train our own motion tracking module.