Team Smiley
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Progress Report 1 – 11/13

Project Topic: Real-time emotion recognition

Progress:

Using OpenCV and haarcascade we were able to implement real-time face tracking. We have a simple python script that reads in frames from the webcam and using haarcascade detects faces if they are present, we then draw a rectangle around each face that it detects in a frame. See face_tracking.py for the code to do so.

Additionally, we have done research on how to recognize emotion from the faces we are capturing. We found that we should put nodes on the eyes, eyebrows, and mouth since they are the most important features for determining emotion. We also found that OpenCV provides an SVM that we can train to recognize emotions using the information gathered from the nodes on the key facial features.

Our initial schedule said that we were going to be working on detecting emotion from static images over this past week, due to feedback from professor Klingner, we have decided to move away from this approach.

Objectives:

1) Use computer's webcam to implement real-time face tracking.
   Result: Detect human faces when they appear in the webcam's frame.

2) Detect eyes, eyebrows, and mouth from a face in a live video
   Result: Track the eyes, eyebrows, and mouth as separate nodes on a single face in live video.

3) Recognize basic emotions from a face in a live video
   Result: Recognize happiness, sadness, and neutrality from a single face in a live video.

Schedule:

11/13 – 11/17:
   Objective 2: Detect eyes, eyebrows, and mouth from a face in a live video
   Put nodes on eyes, eyebrows, and mouth to track them during live video
   Effort: Medium

11/18 – 11/21:

Objective 3: Recognize basic emotions from a face in a live video
Train the SVM with data collected from the previous objective
Effort: Hard

11/22 – 12/2:
Objective 3: Recognize basic emotions from a face in a live video
Detect happiness, sadness, and neutrality from a single face in a live video.
Report emotions in real-time as they change.
Effort: Hard