Computer Vision Project 4 Proposal

Members of your group and group name

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Project topic

Topic: Facial and gesture recognition, as well as eye tracking capabilities.

Overview: We want to write a program that can take a photo of a person, recognizes them and displays their name. In addition, we want it to be able to track features on a face and recognize gestures. Taking it one step further, we would like to incorporate an eye tracking feature that detects where your eyes are looking up, down, left or right.

Objective: Recognize a person from a photo

- Result: Display the name of a person in the given photo by matching with face with photo database that has a picture of each member of our group. If it works for our small dataset, it should presumably work for larger datasets.
- Result: Recognize a person in 75% of the test cases.

Objective: Identify facial gestures

- Result: Determine which gesture the person is making (none, smiling, frowning, laughing)
- Result: Recognize 75% of the gestures that we establish for tracking.

Objective: Eye tracking

- Result: Given a face looking at a camera, determine what direction the eyes are looking.
- Result: Recognize eye direction correctly in 75% of the test cases.

Objective: Combine the above objectives with an experiment of having a test subject look at two videos simultaneously (one on right, one on the left), determine which video (right or left) they are watching, determine the facial gestures they are displaying, and based on the above determine the type of video scene that caused the gesture.
For example, the video on the right causes a smile gesture, so it can be determined to be a comedy (or at least a comedic moment).

- Result: Determine which video is being watched, which gestures are displayed and at what time in the video, and determine the type of video moment (comedy, etc) that caused the gesture.
- Result: Determine which video is being watched 75% of the time, which gestures are displayed 75% of the time, correlate the gestures to time in the video 90% of the time, and determine the type of video moment 75% of the time.

Planned schedule for meeting objectives

Recognize a person from a photo

- Estimate the effort required: Medium effort
- Expected completion date: November 13

Track facial gestures

- Estimate the effort required: High effort
- Expected completion date: November 20

Eye tracking

- Estimate the effort required: Very high effort
- Expected completion date: December 2

Combined experiment with eye tracking and facial gestures:

- Estimated effort: Very high effort
- Expected completion date: December 2