Project

Due Dec 6, 2019 by 11:59pm **Points** 40 **Submitting** a file upload **File Types** zip

Introduction

This project is open-ended intended to be larger and more complex than previous assignments. It is recommended that you work in small teams of 2-3 students. This project also counts twice as much as the previous programs. Therefore the total amount of effort per group should be 4-6 times as much as in previous programs. You will be graded on value added above what you start with (which includes OpenCV and can include other code, as long as you cite your sources).

What to turn in

You are expected to turn in the following items:

- Working C++ source code that can be compiled in Visual Studio 2017 and OpenCV 4.1
- Batch scripts that execute the code appropriately (or run from IDE)
- Test images
- A high-quality technical write-up describing (at least):
  - What you were trying to accomplish
  - What you did accomplish
  - What the results are, include example result images and/or graphs
  - Lessons learned
- PowerPoint slides from the presentations/demonstrations in the last week of class

Each team should turn in only one copy of the above items and they should be submitted in a zip file by the same team member. The write-up should clearly document the members of the team.

What to do

You may select your own project. Run it by me first, so that I can make sure that it is appropriate and that it is sufficient for you to get a good score. Please propose a project to me quickly. Starting this later than next week is not acceptable. Some examples of projects from recent years:

- Road sign detection
- Real-time hand tracking for a video game interface to “pong”
- Recognizing logic gate diagrams from handwritten images
- HSV keypoint descriptor
- Grading handwritten worksheets

- Face/cat detection and classification
- Sign language recognition
- Hand detection and gesture recognition in video
- Plant identification

If you can't think of anything interesting to work, talk to me. I'll try to help out.

Timeline

To complete a satisfactory project, you should make sure to be working on it every week for the rest of the quarter. Here is a sample timeline that would enable completion of a solid project.

Week 1: Form team. Propose project to me. Review necessary OpenCV code. (Full understanding is not necessary, yet.)

Week 2: Finalize desired objectives. First pass implementation coded (resulting in an end-to-end system that can be tested, but might not meet final objectives, yet). Preliminary comparison of new method with previous techniques.

Week 3: Second iteration that extends methods to (or past) objectives. Variations are tested to improve performance. Test scripts/configurations finalized and run to generate (near) final results.

Week 4: Final code modifications and tests. Prepare write-up and presentation. Submit results on Canvas.