Final Project: Your Own Project

Class Presentations: last week of class, Thursday, March 16, 8-11 am
Peer Review Due: Saturday, March 18, 12 noon
Final Report Due: Friday, March 24, 12 noon

The last assignment is to do a project based on an area of Computer Vision of your choice. You can check online resources and previous student projects from this class on Canvas for ideas. For this project, you can find your own lab partners – max 4, min 3 per team.

A project will typically involve reading some technical papers from the literature, implementing some method(s), experimentally testing the method(s) on appropriate images, extending the previous work by adding your own original work, and writing a report that describes the problem, the approach implemented, a summary of experiments, and evaluation of results.

Report: The report should be 15-20 pages (excluding the code) long with the following sections:

- Title and participant names.
- Introduction, motivation and problem statement. Be sure to state clearly any assumptions about images, environment, lighting, etc. Describe your data sets.
- Discussion of previous/relevant work from the literature.
- Description of your approach, algorithms and implementation details. You are allowed to use existing code for known methods. But you should show significant amount of work of your own to make things work. Include a clear description of assumptions of the method and a list of all the parameters that must be specified by the user.
- Analysis of the experimental results – How well did your approach work? What is the limitation of your method. What issues did you encounter? How did you address them? What should be done differently or carried further if you were to do more work on this problem?
- Summary of the work and concluding remarks.
- Division of the work by all team members
- References
- Attach a printout of your well-documented code to the report. Be sure to clearly state what parts of your code you wrote yourself and which parts you got from elsewhere. Document how to produce your results.

The report will be graded based on: quality, degree of difficulty of work, analytical or experimental results, clarity of presentation and depth of understanding displayed.

Presentation: During the last week of class, each team will give an oral presentation of the project and answer questions from the audience. All presentations will be on

Thursday (March 16). Each presentation should be about 12 minutes long, the presentation should be divided among team members.

Peer review: One presentation will be randomly assigned to each student for peer review. The goal for the peer review process is to learn to critically evaluate the work of others and obtain detailed feedback about your own work. The review report should be at about 400 words per project and discuss its quality, significance, and presentation, as well as its limitations. The reports will be graded and are not the basis for grading of the reviewed project. Report will be anonymized and forwarded to the project team.

Grading:

Report: 80%, Presentation: 15%, Peer review: 5%.

Deadlines:

- Submission of your one paragraph project proposal (topic, team members, motivation, data to be used) in email (to jzhang@calpoly.edu) titled "EE 428 Final Project Proposal" by March 9. The team who submits first gets to choose the time slot to present.
- Submission of **presentation slides** to Canvas**:** 11:59 PM the night before presentation.
- **Classroom presentation**: last week of class, March 16.
- Submission of **individual peer reviews** (only electronic file in WORD or text file) to Canvas: by March 18 (Saturday) noon.
- Submission of your **report** (one per group) to Canavs: March 24 (Friday) 12 noon.

Some ideas:

- Rock, paper, scissor
- Strawberry Detection (I will provide the dataset)
- Fruits detection (Fruits 360 dataset)
- Resistor Recognition
- Traffic Sign Detection
- Target identification in crowded scene
- Vision-based parking space detection
- Credit card segmentation and alignment
- License Plate Recognition
- Rubiks Cube Identification