## EECS 442/504 Computer Vision

**Assignment:** Project Overview, Teaming and Selection
**Term:** Fall 2018
**Instructor:** Jason J. Corso, EECS, University of Michigan
**Team/Selection Due Date:** 11/9/2018
**Project Presentations:** 12/7/2018
**Project Writeup Due Date:** 12/15/2018

**Constraints:** This assignment is to be executed by small groups of students with a size of 4 being optimal. Sharing resources across project teams is not permitted. Groups across 442 and 504 are not permitted. Use of external code and toolkits for project is permitted for the implementation; projects may not just directly download and run code in its entirety. Implementation in a Pythonic environment is required; ETA is recommended.

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**Goals:** expose the students to current literature, problems, methods and applications in computer vision; allow for a level of depth in the course by understanding and implementation of a specific method with known performance characteristics. Require students think about potential uses of computer vision ideas in a practical setting.

**Project Description:** Create the next greatest Computer Vision Startup Idea!

Groups of students will carry out a computer vision project of their design. The project will create an idea for a computer vision startup company; the project team will design and implement a computer vision solution for this idea and will present a prototype "pitch" for the project. This type of project requires the students think about a practical use of computer vision and a demonstration of sufficient depth to show it is possible.

With these goals and constraints in mind, the project selection is fully open-ended. Students are encouraged to create a project that interests their team. The instruction staff realizes that scoping a project is a challenge and encourage interaction over piazza or office-hours for that discussion.

Projects need not lead to publications.

Projects should target a problem that uses computer vision techniques we have discussed during the term directly, that builds on the foundation of techniques that we have discussed, or that uses other computer vision techniques we have not discussed.

Projects must use visual data as the main subject. However, projects can include additional non-visual modalities, such as language or weather, if relevant.

Project ideas are not included in this document to avoid biasing choice; some have been mentioned in class.

You are required to write a four page report that contains the following sections

- Executive Overview: What is the summary of the idea for the startup/project and the method?
- Background and Impact: Why is the idea relevant to society? Why would be be useful? What is its expected impact?
- Method: What is the main computer vision method?
- Prototype: Describe the implementation and any nuances about the prototype.
- Results: Show the project prototype working on real data.

All code will be submitted along with the report. Reports may not be longer than 4 pages, images and references included.

**Submission Process:** The GSIs will communicate the teaming process via piazza. They will also communicate the submission of the report, but we expect this to be on Canvas.

11/9 Teaming: create your project team on canvas and submit (as a team) a one slide overview of the project idea. Any such overview should answer the core questions of "What is the idea? Why is it relevant? How will you do it? Why will people care?"

12/7 Presentation: Each team will have 3-4 minutes to make their "pitch." This will be in place of the last class period. We will most likely have a poster session in the EECS atrium, but the details are still being worked out.

12/15 Report: submit project report and code

**Grading and Evaluation:** The overall project will be graded with 100 points (note the project is worth 15% of the overall course grade). These points will be distributed as follows

- 10 - On-time submission of the team and the selection of papers.
- 10 - On-time and complete submission of the term report.
- 10 - On-time and complete submission of the code.
- 10 - Creativity of the project itself.
- 30 - Professor and GSI grading of the project presentation.
- 30 - Professor and GSI grading of project content (report included).