Computer Vision and Intelligent Systems Project
Due 05/09

1   Description

The final project is an open-ended research project based on material you have been exposed to in the course and through publications. Good sources for project ideas are 1) topics discussed in lecture, 2) computer vision and graphics publications, or 3) projects from other vision courses. I will try to be very accommodating with your project choice. A good project topic is concrete and narrowly-scoped enough to be completed with a few weeks of hard work but could potentially lead to deeper research investigations and publications. Suggested project topics are:

- Kinect-based video processing
- Intel Perceptual Computing
- Face detection and recognition
- Emotion recognition
- Video stabilization

- Pedestrian detection/tracking
- Intersection safety assessment
- License plate recognition
- Object detection/recognition
- Vehicle detection

The project should be completed individually. Each student will submit a project proposal for approval before beginning any programming and will generate a report and final presentation at the completion of the project.

2   Proposal

An initial project proposal must be submitted on Th. 03/21. The proposal is a very short document (half a page) which describes the high-level functionality of the project. It should specify what the project will do and any tools, libraries, or data sets that will be utilized. The proposal will be evaluated to ensure the diffcultly level is appropriate and to get recommendations of other resources that may be helpful.

The short proposal document should include:

1. Your name.
2. The description of your final project.

3   Report

At the completion of the project a report must be generated to describe the project. The project report will be written in an academic conference style. Unless you have a particular publication venue you will target for your project, you should use IEEE's Latex conference template. The project report should be approximately 6 pages and contain the following sections:

1. Abstract - This brief summary of the project purpose presents a general overview of the project topic and solution.

2. Introduction - The introduction should introduce readers to the project topic and clearly explain the problem, application domain, and need for the project.

3. Background - The report must highlight previous research in your topic area and clearly explain why this project is meaningful.

4. Implementation - The project implementation provides the details on how the specified problem was solved. This will include a system diagram as well as a description of each of the system components. The system component description must detail the purpose and the mathematical/computational framework.

5. Experimental Evaluation - The experimental section describes how the project program performance was evaluated. This section should provide examples that highlight the operation of your system. There should be some form of numerical performance quantification and/or comparison to literature where applicable.

6. Conclusion - The conclusion of the report should provide a summary of the project aim and results as well as highlight further research directions.

4   Presentation

Each student will 15 minutes to give a conference presentation of their projects in class on Th. 05/09. Each presenter must leave a few minutes for questions and discussion at the end. The presentation should highlight the problem, solution, and demonstrate your project in action either as a table-top demo or as a video (preferred). Please email your presentation files prior to class so they may be preloaded. Be sure to bring a backup copy either on a disk or flash drive (this can be your electronic submission).

5   Deadlines and Deliverables

The following highlight the important dates and items to be submitted for the project. The project will be worth 15% of your final grade.

5.1   Deadlines

1. 03/21 Project proposal
2. 05/09 Project presentation
3. 05/09 Project report

5.2   Deliverables

1. Hard copy version of report (6 pages)
2. Electronic submission including report, code, presentation, and demo video.

References

1. IEEE's Latex conference template

2. IEEE Author Digital Toolbox

3. IEEE Citation Reference

4. IEEEtran

5. IEEEtran BibTex