CS-512 – Final Project (20%)

Proposal due by: March 10, 2023
Project due by: April, 17, 2023

Project Description

The final project is a two-student group project. The required project deliverables are a presentation, software implementation, and a written report. All the components should be submitted together by the due date. Late days are not allowed. To sign up for a topic, make sure that the topic is available and submit a project proposal as described below. There is a 5% penalty for not signing up for a project or not submitting the project proposal on time. The following is a detailed description of the main components of the project:

- *Project proposal*: The project proposal should contain a short (2 pages) description of the problem you plan to address, the methods you plan to apply, and the data (source) you plan to use. The proposal must rely on one or more research papers and should include the details of these papers. In addition include the names of all team members and the responsibility of each team member. The proposal and relevant paper(s) should be submitted via bitbucket as in the other assignments. Each team member must make a separate submission of the documents. Relevant research papers can be found by searching the online database of the Galvin Library (ACM/IEEE)[1]) or using other web resources.

- *In class presentation (5% of the final grade in the course)*: To prepare your presentation you need to follow the research paper you selected in your proposal and possibly other sources. You must clearly indicate the sources used for your presentation and specify their details. Your presentation should be prepared in powerpoint/html/pdf. Please do not plan to use the whiteboard as part of your presentation. All necessary figures and diagrams should be part of the presentation file. The time allocated to each presentation is roughly 10-15 minutes. In a group project, all group members must present. The time constraint will be strictly enforced to allow sufficient presentation time for other presenters. Your presentation should include: problem statement and background material, description of the proposed solution, implementation details, and discussion of the obtained results. The presentation should conform to one or more research papers and should not repeat material which was covered in class. It is highly recommended that you include a short demonstration of your implementation (recorded as video). Part of the presentation grade will be based on peer review. The evaluation of your presentation will include the following components: facts presented, clearness of presentation, references used, quality of slides, and presentation flow.

- *Report and software implementation (15% of the final grade in the course)*: You need to write a computer program in Python to implement the algorithms you chose and write a concluding report. You must provide instructions on how to use the program you wrote, and provide appropriate test

[1] http://library.iit.edu/databases/

data and configuration files for using it. Make sure that the program allows for modification of parameters and the examination of intermediate results. In writing the program, you may use external modules as needed provided that you cite their origin and clarifying that these were not written by you. External modules should not implement the main functionality of your algorithm. The main functionality should be implemented by you.

The report should follow the same structure as in the assignments. You need to describe the problem you addressed, the method you took to solve it, the data you used, and results obtained by the program you wrote. You must evaluate and discuss the results you obtained. The report should be written in a format of a research paper and must be at least 8 pages long and does not need to be in a two column format. Sources used in your work should be clearly indicated in the bibliography section (including web resources and software libraries you used). Cited references should follow the IEEE/ACM conventions. In the beginning of the report write the title of the project and the names of team members. Include a description of what was accomplished by each team member.

Sign up instructions

- Find a topic and verify that it is not already taken using the following link: `https://tinyurl.com/y6qsvgys` It is your responsibility to select a topic (and paper) that is not already selected by other students. It is OK to sign up for a topic selected by another student but make sure that the paper you are selecting is not too similar to a paper selected by the other person.
- Sign up by filling the form using the following link: `https://forms.gle/xToScbfx18G9bQ619`Each team need only submit one form.
- Prepare a two-page project proposal including the following components, and upload it to bitbucket (into a 'proposal' folder). Each team member must submit a copy of the proposal. The proposal need to include:
  - Name(s), student Id(s), title of project.
  - The name of the main paper that will be used and publication details.
  - Problem statement: What is the problem that has to be solved
  - Approach: How will the problem be solved
  - Data: What is the data that will be used
  - References: Reference relevant papers, web sources, relevant software, and data sources.
  - Team member responsibilities.

  Upload the paper(s) you plan to use with the proposal.
- You will receive an email if there are any problems with your proposal. Proposal approvals will be indicated in blackboard.
- To fill the form to sign up for a project you must be logged in to your IIT google account (through myiit). Pay attention to the instructions in the beginning of the form. If you have problem accessing the form (e.g. getting a "link not published" error) make sure to log out of any google account you are logged into, and then log into your myiit account. If you have to request that we share the document with you, you are not doing this correctly. You need to use your IIT google account.

Submission instructions

- Please follow the electronic submission instructions of the assignments. The project should be submitted through a folder named 'project' in your bitbucket repository.
- In addition to the `src`, `doc`, and `data` folder, create the following folder:
  - `presentation` - containing the presentation files and a 4/6 slides/page pdf handout.
  - `sources` - containing any sources you used in the project (e.g. papers and any external code/libraries).
- Do not upload large datasets (¿10MB) to bitbucket. In the case of a large dataset, place the data on google drive and provide the link in the report.
- Late days may not be used for the final project. If you did not manage to complete the project you should submit what you have available by the due date.

Project Topics

When selecting a topic, you must identify a paper describing the core approach you will be implementing and data that you will use. The selected paper should contain material different than what was covered in class. Valid project topics include computer vision techniques and applications of computer vision techniques.