COMP3106: Introduction to Artificial Intelligence

Course Project

Winter 2022
School of Computer Science
Carleton University

Three components (22% of the overall grade in total):
Project Proposal Due: March 10, 2022
Project Presentation: Week of April 11 – 15, 2022
Project Report Due: April 18, 2022

Project Team

Course projects must be undertaken **in teams of 2 or 3 students**. It is `up to you to find your team members and form your project team`. Each student on a team will receive the same grade for the project; it is up to the team members to divide the work fairly. Each project will be expected to solve a problem using AI methodologies.

Course Project

Your course project is an opportunity to get you to `tackle a problem using artificial intelligence methodologies` and collaborate in teams. You can choose your own problem for this project. For example, you can solve a natural language processing problem, an image/video analysis problem, a robotic control problem, or a medical/health data analysis problem. If you need some suggestions, you may check the list of Kaggle Competition tasks at https://www.kaggle.com/competitions or the KDD Cup at https://kdd.org/kdd-cup.

For any problem you decide to tackle, you will need to find available data sets, analyze the problem, develop or implement artificial intelligence methodologies to solve the problem.

As shown at the top of this documents and in the course outline, the project has three components: (1) a project proposal, (2) a live presentation of the work, and (3) a project report detailing the work completed.

Formatting requirements: Both the project proposal and the project report need to be submitted as a single pdf file with the standard page format:

- Page size: 8.5×11 inches
- Margins: $1 \sim 1.2$ inch from each edge of the page
- Font size: 11
- Single line spacing

Project Proposal

For project proposal, each team needs to submit a pdf file with `up to 2 pages` that contains (1) the title of the project, (2) team members' names, (3) a description of the problem your team is addressing, and (4) a very brief description (a few sentences) about the AI methods

you plan to use. The proposal is intended to ensure you have formed your project team, chosen a problem, and started working on the project. You are allowed to change your methodologies during the development process of the project.

Project Presentation

The project presentation will take place during the week of April 11–15, 2022. Each team will provide a live and synchronous presentation about their project using PowerPoint slides and demos. The specific instruction and time schedule will be provided later.

Project Report

Each team need to submit their report as a single pdf file with `no more than` 10 `pages` and include the following components.

1. `Title and Authors`
2. `Abstract.` It should not be more than 150 words.
3. `Introduction.` As clearly as possible, describe the problem you are addressing and the related background information and knowledge. How does the project fit into the topic area? State the challenge and difficulties of the problem. State the objectives and contributions of the project.
4. `Approach.` As clearly as possible, describe the AI methods you used to address the problem, and clearly specify the final system(s) that were implemented. Explain why you implemented the systems in the way you did, what are the differences of your work from previous works in the area, and what are the advantages/disadvantage of your methods/systems. For any approach or any material that is not developed by you, you must provide clear citations.
5. `Results/Outcomes and Discussions`. If applicable, describe your datasets and whether they are appropriate to address the objectives. Describe how are the methods evaluated and why you adopted the particular evaluations. As clearly as possible, explain your experimental setting, present your results/outcomes (using tables, figures, etc., in addition to system demo (if applicable)), and discuss your results/outcomes.
6. `Conclusion.` What conclusions can you draw from doing this project? Are there any potential improvements or future work for the project?
7. `User Manual.` (If applicable) For system you implemented, please describe the primary features of the implementation, and provide instructions on how to use/interact with the implementation. This part should be no more than 2 page.
8. `References (if applicable).` The references should be no more than 1 page.

The instructor and TAs may request your implementation package for the project after the report due date. When requested, you should submit them promptly on the same day.