Course Project

This is a group project. Each group will have 2-3 people. This project is marked out of 60 points. If you plan to do it individually, please let the instructor know.

Due Date: April 26 Friday, 2024, 11:59PM

Project Overview

This project is open-ended but should involve the topic of deep learning. The goal of the project is to create or improve or apply or analyze the algorithms/techniques/methods related to deep learning. For example, students can propose topics like "I will create/improve/apply/analyze an algorithm/technique that …". The contents can be sourced from existing research publications or GitHub. The referenced techniques should be state-of-the-art deep learning methods that were proposed after 2020 and published in high-quality venues (h5-index > 130). Students are encouraged to relate your previous/planned studying/working area to the deep learning techniques.

Deliverables

The deliverables are (1) a project report, (2) a .ipynb file and your datasets, and (3) a project presentation.

The project report is submitted as a single PDF file (12-point font and 1.5-spaced). Regarding to how to write a high-quality report to show your project achievements, the following guidelines are provided for your reference.

The goal of preparing a project report is to demonstrate more details about your project ideas, goals, methods, and results. It should include the following sections:

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- Summary (200-250 words): A concise and factual summary of the project conducted including motivation for the project, a brief overview of the proposed method, and the outcomes.
- Introduction (0.5-1 page): A brief overview of the background and context of the topic. This section motivates the project and gives an overview of the proposed method. The section should also discuss recent and relevant work in the area. You can include relevant citations to prior work on your topic and describe how they are relevant. The citations are not limited to research publications or book chapters, but can also be website URL or public Git repository, etc.
- Methodology (2-3 pages): A detailed description of how the project was conducted. Describe the proposed method to the stated problem, as clearly as possible. Include any necessary diagrams and/or figures to help explain the method.
- Experiments (2-3 pages): A detailed description of experimental design, results, analysis, and discussion. Describe experimental setup and consideration. This section includes the results and analysis of the experiment results.

- Conclusion and Discussion for Future Work (0.5-1 page): A general summary of the main ideas and insights in the project conducted. Take a step back and evaluate the pros and cons of your method from a higher level. List things that can be done towards the future improvement of the project (if applicable).
- References (≤ 1 page): A list of the source of the cited information.
- Contributions of group members (if applicable).

The .ipynb file contains the scripts (including the results after running) used for result replication. It should be accessible, understandable, and replicable.

The project presentation highlights and summarizes the project conducted using slides. It should be planned for 8 to 10 minutes.

Marking Rubric

Presentation (10 points)
Evaluation metrics: Clearly demonstrate the project goals, progress/completeness, and the obtained important results, so that the audience can overall understand your project goals, methods, results, and contributions without reading the report.

Report (50 points)

(1) Project originality: 20 points
- Your project should include your own analysis (quantitative or qualitative), rather than simply restating/redemonstrating the works well-documented online. You can extend/expand upon existing works. Demonstration of your understanding of the methods and any modifications that can be applied.

(2) Project and experiments completeness: 20 points
- The code in .ipynb files can be smoothly run by TA without debugging.
- Enough experiments on moderate or large datasets are needed to convince the reader/audience of the effectiveness of the proposed method.

(3) Report writing quality: 10 points
- Correctness: The content should be accurate, truthful, and properly cited.
- Clearness: Students should try to use plain languages to explain the concepts and avoid using uncommon words or GPT-like words.

Plagiarism from the internet or peers is not allowed.