جـــامـــعـــة مـحـمـد بـــن زايـــد
للـــذكـــاء الاصـــطـــنـــاعـــي
MOHAMED BIN ZAYED UNIVERSITY
OF ARTIFICIAL INTELLIGENCE

AI701: Foundations of Artificial Intelligence
Fall 2023

Project Guidelines Document

Instructions:

- Group Project. Maximum number of students per group: 3.
- This project carries 50% marks of the overall course marks.
- Project deliverables: project code and data (if not too large), project presentation, and project report. All the required material should be zipped in one folder (per group).
- Project proposal submission deadline is 29th September 2023 (23:59 UAE time).
- Project presentations will be around Week 15 of Fall 2023 semester.
- Project report submission along with project deliverables deadline: 20th November 2023 (23:59 UAE time).
- Project report format is provided with project guidelines with a maximum page limit of 8 excluding references.

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1 Overview

The goal of working on a project is three-fold. First, it will provide you with the opportunity to apply the concepts learned in this course creatively, which helps you with understanding the course material more deeply. Second, designing and working on a unique project in a team which is something that you will encounter, if you haven't already, rather sooner than later in life, and this course project helps with preparing for that. Third, along with the opportunity to practice and the satisfaction of working creatively, students can use this project to enhance their portfolio or resume.
The project consists of 3 parts: *a project proposal*, *a short project presentation*, and *a project report*. The expectations for each part will be discussed in the following sections.

2 Project Instructions

- Groups must consist of 2-3 students, with a maximum of 3 members. This activity emphasizes collaborative learning, and solo projects will not be favored. Kindly record your group details in the Excel sheet that will be shared very soon.
- All group members must ensure an even distribution of responsibilities and confirm that each individual has contributed. Contributions will be evaluated during the final review and through a peer-feedback survey at the project's conclusion. Please outline individual member tasks in both mid-term and final reports.
- Deadline extensions will not be granted without prior approval. Submitting after the deadline will result in no credit.
- We recommend using LATEX for typing. MS Word submissions are also acceptable. However, handwritten reports will not be considered. Clearly state any collaborators. For the coding aspect, refrain from sharing your source code with peers or using unreferenced code from the internet.
- All submissions should adhere to the standard NeurIPS format, and page limits will be strictly enforced.

2.1 Evaluation Criteria for Research Projects

Originality: We encourage innovative project ideas and applications. Projects introducing fresh concepts and/or interesting findings in the scope of course, or unique applications of established algorithms will receive higher marks. If your project relies on existing code, acknowledge it and clarify the differences.
Depth of Study: Projects that employ multiple AI techniques to yield a sophisticated system, those which present meticulously planned experiments and a comprehensive analysis of results, or those showcasing diverse real-world applications will be prioritized in scoring.
Presentation: Emphasis will be placed on the lucidity and style of the reports. Projects with well-documented and organized code will gain added marks.

3 Project Proposal

The key purpose of the project proposal is to receive feedback from the TAs/the instructor regarding whether your project is feasible and whether it is within the scope of this class. Also, the project proposal offers a chance to receive useful feedback and suggestions on your project.
For this project, you will be working in a team consisting of three students. If you have any concerns working with someone in your group, please talk to a TA or the instructor for accommodations.

3.1 Proposal Format

The project proposal is a 1-3 page document (800-1200 words) excluding references. You are encouraged (not required) to use 1-2 figures to illustrate technical concepts. The proposal must be formatted and submitted as a PDF document. The submission deadline for project proposal submission deadline is **29th September 2023 (23:59 UAE time)**.
Introduction: Describe what you are planning to do. Briefly describe related work (if applicable).
Motivation: Describe why your project is interesting. E.g., you can describe why your project could have a broader societal impact. Or, you may describe the motivation from a personal learning perspective.
Evaluation: What would the successful outcome of your project look like? In other words, under which circumstances would you consider your project to be "successful?" How do you measure success, specific to this project, from a technical standpoint?
Resources: What resources are you going to use (datasets, computer hardware, computational tools, etc.)?

4 Contributions

You are expected to share the workload evenly, and every group member is expected to participate in both the experiments and writing. (As a group, you only need to submit one proposal and one report, though. So you need to work together and coordinate your efforts.)
Clearly indicate what computational and writing task each member of your group will be participating in.
It is crucial that you talk to each other regularly!!! Schedule regular meetings and/or use online communication tools (e.g., Gitter, Slack, or email) to stay in touch with your group members throughout the semester regarding the process of your project.
Modifications to the Proposal: After you have received feedback from the TAs/the instructor, and your project proposal has been graded, you are advised to stick to the project outline in the proposal as closely as possible. However, if there is a concept introduced in a later lecture (for instance, a machine learning algorithm that you think is more appropriate then the one you proposed), you have the option to modify your proposal, but you are not penalized if you don't. If you wish to update your project outline, talk to a TA first.

5 Project Presentation

During the last week of lectures, you will be presenting your project to the class. The presentation is "free form" but should cover the following:

- Introduce the topic to a general audience (your class).

- Summarize the main approach or method.
- Highlight the outcomes of your project.

The presentation should be 8-10 minutes long, plus 2 minutes will be reserved for questions. All members of the group should participate in the presentation.
To encourage attendance, we will use a random number generator in class to determine the order in which the groups will present. Please bring your presentation in your own device USB for presentation. **Presentation days: 29th November 2023 and 30th November 2023 at 12:45pm-5:30pm will held in Multi purpose Hall (in case of unavailability presentation will held in Class room 4,5 and 6)**

6 Project Report

The project report is expected to be 4-6 pages long (excluding references) and should contain the follwing sections:

- Introduction
- Contributions
- Related Work
- Proposed Method
- Experiments
- Results and Discussion
- Conclusions

Also, you are required to submit all the code, computations, and experiments you developed and conducted for this project. Note that the quality of code will not have any influence on your grade and will merely serve as a basis to establish that the report contains original and "real" results. **Note that, the deadline for project report submission along with project deliverables is 20th of November 2023 (23:59 UAE time).**
Optional: Sharing your Project You are encouraged to share your project/final project report online after you completed the course – for example, via GitHub or on a personal website online.

7 Grading

The final project grade will be computed using the following weighted grading scheme:

- 10% Project proposal
- 15% Project presentation
- 25% Project report

8 Some potential directions for project

- Empirical evaluation of different semi-supervised learning algorithms (on the dataset of your choice)
- Multimodal learning for image captioning.
- Multimodal Learning to associate faces with voices and vice versa.
- Self-supervised learning for video sequences.
- Exploring the effect of data augmentation on image classification tasks.
- Adversarial attacks on visual object tracking and detection algorithms.
- Deep learning models, such as ConvNets, also run in real time on mobile phones and Raspberry Pi's. So, building an interesting mobile application could be a good project.
- Detecting Bias in News Articles using NLP models.
- Automated writing feedback using NLP models.