Project - Bring DL to your area of interest

The project's goal is to practice deep learning in a real-world problem. The project is playing with the problem of **your** interest. Find a problem that you and your teammates like. It can be any subject! Find data related to the problem or simulation model to play with. If you do not know where to start, please talk to the instructor or TA(s). You can tackle diverse application problems or the limitation of DL itself to make it better or more efficient.

The project requires a certain level of difficulty, so you can have valuable experience (It is a semester-long project so much more than a programming assignment!). Your final report should demonstrate what you have learned, especially something new about deep learning.

You are submitting the final report in NIPS format using the LaTeX templateLinks to an external site.. Please start to learn the LaTeX tags, which are very easy to learn. For collaborative writing, you can create a free account in Overleaf that helps you and your teammates write together online.

Team Registration / GitHub (1 %)

(Due: Jan 13 11:00 pm)

Topics: From any DL-related topics, you are forming a team (2~3 members) to work on a specific topic.

Shared Repo: Be sure to create a shared repository (GitHub/Bitbucket) and submit the address to it.

Proposal (19 %)

(Due: Feb 3 11:00 pm for slide submission. Feb 7 for presentation and discussions)
PDF (Slides) submission

Here are the required contents that you will include:

- Title
- Name(s)
- Team Name, Group #
- the problem and dataset (if you have one) that you will investigate,
- the steps and approaches that you will take,

- **survey on the area (related works)**
    - citation and references (in a separate section)
- the timeline for the work plan,
- what each team member will do,
    - For teamwork, I expect a clear justification of each member's role. When you discuss topics, make sure to discuss each one's role as well. At the end of the semester, you are required to submit a Peer Evaluation.
- questions that you want to answer during the projects,
- your expectation of what you will be able to learn from the project.

Proposal Feedback

During the in-class proposal presentation, the instructional team will give you feedback relating to your plan. You will reflect on the feedback on your project. You can scale up or down as the instructor asked for.

Mid-Progress Report (5%)

(Due: Mar 21, 11:00 pm)
Text submission and consult the progress with TA(s)

Continue working on the project and report the current status or issues with a TA. If needed, you can prepare a short documentation describing what you have accomplished and what you have left to talk with a TA. The (optional) short document can have

- Project title, name, team name
- brief problem description (rewrite concisely)
- accomplished milestones from the original plan
- difficulties or problems that you are experiencing (if you have)
    - if you do not have, make the slide saying no difficulties sailing well.
- modified plan/timeline for the rest
- **How the team has addressed the instructor's feedback**
- **What is unique in your project?**
- References

Written Report (50%)

(Due: May 5. 11:00 pm, no page limit)
PDF with supplementary materials (codes and others) in GitHub

The recommended structure of the report contains the following:

- Title, Team members' name, GitHub Link (in comment)
- Introduction (contains paragraphs for the problem statement, motivation, a short review of other research, open questions in the domain, a short summary of your proposed approach)
- Backgrounds
    - survey/summary of other related research
- Methods
    - overall figure that explains how your project works
    - details of your algorithms and methods
- Experiments
    - test your methods and show the results
    - Discuss and analyze your observation
- Conclusions
    - don't forget to mention what you have learned!
- **Response to the feedback**
- References
    - It is important to cite others' work!

Presentation and Interaction (25%)

(Due: Apr 28. 11:00 pm for slides, May 2 for in-class presentation & discussions)

You will present your work in our last class. The in-class Q/A + presentation rubric will be released later.

By the deadline, you will be required to submit the presentation slides on Canvas.

15 minutes are the expected length of the team presentation.

The format and presenter for the team presentation is up to your team.

The minimal information you will present is

- Problem & Challenges
- Motivation
- existing related approaches
- your method
- Results and your observation
- Conclusion and future work