CompSci 590.7

See last page for important deadlines!

1 Topics

Reasonable projects include (but are not limited to) the following types of things, listed in order of approximately increasing difficulty:

1. Reproduce an existing result, though note that you must justify why it's technically challenging and interesting to do so, e.g., because there are some legitimate questions or concerns about the reproducibility of the existing result. Reproducing a result for which there is existing published code is *not* an acceptable project topic.
2. Compare two or more algorithms on domains for which comparisons have not already been published.
3. Modify an existing algorithm in a novel way to (hopefully) improve upon existing results.
4. Apply techniques from class to a new domain, e.g., a new game, that has not previously been published.
5. Develop an entirely new algorithm.
6. Prove a novel theorem.

2 Content and format

2.1 Length

Your *proposal* should be 1-2 pages. Your *final* write-up should be whatever is required to explain clearly and completely what you have done and what results you have obtained. Most reports will be approximately 7-8 single column pages, but that is not an upper or lower bound.

2.2 Team Membership and Size

List who is on your team. Note that we are now encouraging team sizes of 3 (due to the logistics of managing the large class size), but 1-4 are acceptable so long as the project scope is commensurate with team size.

2.3 Contributions

Your proposal should explicitly list the expected contributions of each team member.

2.4 Project Goals

- What is your project about?
- How would you define complete success?
- What outcomes short of total success would still achieve worthwhile objectives such as scientific interest, educational value, and demonstration of mastery of concepts covered in class?

2.5 Logistics and Scaling

Be sure to discuss the following points so that we can help maximize your chances of a satisfying outcome:

- How is the scale of the project commensurate with the size of the team? For example, for a team size of 1, it will be more challenging to accomplish ambitious coding objectives in the available time. On the other hand, for a team size of 4, a more ambitious project with more extensive goals is expected.
- What resources are required to complete your project? This is a "sanity check" for you to validate that you have access to the resources available to complete the project in a timely manner. In the likely event that your project requires training a neural network, estimate how long it will take to do a single experiment, i.e., train a single neural network and evaluate its performance. Keep in mind that you will want to do multiple (more than 5) random number seeds to get a realistic estimate of performance. This can be parallelized if you have the resources to do that. Also keep in mind that the first things you try probably won't work, so you should multiply all of this by another factor of at least 5, probably more, to leave enough time for experimentation with different parameters, etc. Finally, assess whether it is realistic to complete your training in the available time. (If the answer is "no," then you should adjust your goals.)
- What is your proposed/estimated timeline for getting all of this done?

2.6 Bibliography

For whatever you are proposing, you should demonstrate that you've made a reasonable effort to see what others have done before by describing and citing related work. This discussion should be in the body of your proposal where you discuss the project goals, so this is just a reminder to include citations to the

related work that you discuss in a final, bibliography section. Proposals that appear to be simply mimicking existing work will not be viewed favorably.

3 Timeline and Deliverables

Item	Deadline	Points
Register team in Google Doc	2/27/26	0
Meet with course staff to get feedback	3/20/26	10
Submit proposal	3/23/26	20
Submit write-up	4/17/26	40
Presentation	4/20/26, 4/22/26, 4/27/26	30

Links:

- Register your team
- Sign up for project feedback