CS 534 Phase 2 - Project Progress Report (35 Points)
(Due: 11:59 p.m. on July 13, 2025)

Deliverables: A zip file includes your report, all .py codes, data, slides, and video link used in your project.

Your project progress report should be **AT LEAST 6 pages, not including the reference page,** and **AT LEAST 15-min presentation video with its slides** to describe and explain the following sections, answers, and elements. You may include any figures, graphs, and tables to supplement your explanations and descriptions in your progress report if needed. Please feel free to recycle your Phase 1 – Project Proposal and update your write-up for Phase 2 Project Progress Report.

If your team works on **Option 1 - State-Of-The-Art AI Project**, please follow the instructions of Sections A1 and B below. If your team works on **Option 2 - Innovative/Advanced AI Project**, please read the instructions of Sections A2 and B below.

Note: (1) Your project should be related to AI topic areas; (2) Each group only submits one PDF copy; and (3) Each page format should be 1-inch Margin, Times New Roman, 10 pt, and Single Space.

(A1) Written Project Progress Report Content (20 Points)

Option 1 - State-Of-The-Art AI Project

Project Title (0.5 Point)
Team Members (0.5 Point)
Photos (0.5 Point)
Current Programs (0.5 Point)

Section 1. Introduction (At Least 1 Page) (2 Points)

1 Paragraph

- What is the motivational background and context of your domain problem addressed by your project?
- Why is this domain problem important to solve? Please provide some real-world examples and significant statistics with citations to support the importance of this domain problem.

At LEAST 2 Paragraphs

- Describe and explain **at least three** current state-of-the-art (SOTA) methods with citations that should be able to address the domain problem.
- In your description, please explain what **advantages** of those methods are and why those methods should be able to address the problem.

At LEAST 2 Paragraphs

- What is your proposed high-level solution and process to solve the problem using the SOTA methods?
- How will you evaluate the effectiveness of those SOTA approach(es) listed above for your problem? That is, you need to describe how you will measure the performance or success of those current SOTA approaches described above that you can **replicate** and compare those SOTA methods in terms of the performance and select the best one among them?
- What data and experiments will you use in your SOTA performance comparison?

1 Paragraph: Outline the subsequent sections that you will include for the rest of your report.

Section 2. SOTA Literature Review (At Least 0.5 Page) (2 Points)

Use **at least one or two paragraphs** to deeply describe each SOTA method that you mention in Section 1. For example, if there are three SOTA methods listed in Section 1, you should have at least three paragraphs, i.e., one paragraph for each method. Please also re-state what advantages of those methods are and why those methods should be able to address the problem.

Section 3. Proposed High-level Solution and Process (At Least 3 Pages) (8 Points)

In this section, you need to describe and explain your proposed high-level solution and process to solve the problem using the SOTA methods in detail. You may include, but are not limited to:

- A workflow/pipeline diagram to show the entire solution and process, using the SOTA methods, and describe/explain them in detail.
- Your development and implementation for your workflow/pipeline with the SOTA methods. That is, what libraries, modules, classes, functions, etc., have been implemented and used to address your solution and process described above based on your workflow/pipeline.
- Please include any mathematical models, pseudocode algorithms, python code implementations, etc., to support your workflow/pipeline development and implementation.

Section 4. Preliminary Experimental Results and Discussions (At Least 1 Page) (2 Points)

- In this section, you need to describe how you will measure the performance or success of your proposed high-level solution and process using the SOTA methods in detail.
- What data, experiments, demo, and/or prototypes will you use and conduct, respectively, to assure that your approach(es) are really performing and successful? Please describe them in detail.
- Your preliminary experimental results should include MOST SOTA methods for the performance comparisons.
- You can use tables, charts, pictures, etc., to show your preliminary experimental results and provide discussions.

Section 5. Lessons Learned (At Least 1 Paragraph) (2 Points)

- Describe your experience and what you have learned so far since you started working on this project.
- What skills and knowledge you have been practicing or new tools and techniques you are working with, that you did not learn and know before?

Section 6. Timeline Schedule for the Remaining Project Tasks (At Least 0.5 Page) (1 Point)

Use the Gantt chart to draw up **a timeline schedule** to lay out all the identified, remaining project work tasks from the above to be undertaken for the rest of the semester week by week.

References (1 Points)

- Provide a list of expected background material (**AT LEAST 10 Papers from the Google Scholar**: **https://scholar.google.com/**) and/or State-of-the-Art Page at Paper with Code: **https://paperswithcode.com/sota**) that you have planned to read and learn about for your AI project. Those papers should be the recent ones **from 2020 to now**. Any additional resources, such as a list of manuals, a list of URLs and tutorials, development tools, software environment, system architecture, programming language libraries, and etc., are highly welcome.
- All the references that you list here should have been **cited in Section 1, 2 and other previous sections** already.
- Use the **APA Style** for the references and citations: **https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_style_introduction.html**.

Grading

The grading will primarily be based on the clarity of your project progress report in terms of the deliverables described above. Overall, your understanding of the project, its anticipated scope, timeline, etc., should be clearly articulated. A preliminary feasibility assessment is important. In some cases, the instructor may call a team meeting to get additional information beyond the submitted project progress report, if the report is not clear enough. The readability and professional quality of your document will also be taken into account when assigning the grade.

(A2) Written Project Progress Report Content (20 Points)

Option 2 - Innovative/Advanced AI Project

Project Title (0.5 Point)
Team Members (0.5 Point)
Photos (0.5 Point)
Current Programs (0.5 Point)

Section 1. Introduction (At Least 1 Page) (2 Points)

1 Paragraph

- What is the motivational background and context of your domain problem addressed by your project?
- Why is this domain problem important to solve? Please provide some real-world examples and significant statistics with citations to support the importance of this domain problem.

At LEAST 2 Paragraphs

- Describe and explain **at least three** current state-of-the-art (SOTA) methods with citations that have already addressed this domain problem.
- In your description, please explain what **advantages** of those methods are to address the problem and what **disadvantages** of those methods are and what **gaps** are missing.
- That is, which part(s) of the problem still have **NOT** been considered and solved by using those SOTA methods?

At LEAST 2 Paragraphs

- What is/are your advanced/novel approach(es) that you are now proposing to address the above disadvantages and gaps of those current SOTA methods listed above that have not been able to completely solve the problem yet?
- Specifically, please provide a summary contribution of your AI work tasks to address those disadvantages and gaps.
  - ✓ What is your proposed high-level solution and process to solve the problem? What differences could you make by using your advanced/novel approach(es) in the problem that you are solving now?
  - ✓ How will you evaluate the effectiveness of your approach(es)? That is, you need to describe how you will measure the performance or success of your approach(es) and be able to **replicate** those SOTA approaches described before so that you can compare your own method with those SOTA's in terms of the same performance metrics?
  - ✓ What data, experiments, demo, and/or prototypes will you use to assure your approach(es) really successful that outperforms those SOTA approaches?

1 Paragraph: Outline the subsequent sections that you will include for the rest of your report.

Section 2. SOTA Literature Review (At Least 0.5 Page) (2 Points)

Use **at least one or two paragraphs** to deeply describe each SOTA method that you mention in Section 1. For example, if there are three SOTA methods listed in Section 1, you should have at least three paragraphs, i.e., one paragraph for each method. Please also re-state what **disadvantages** of those methods are and what **gaps** are missing. That is, which part(s) of the problems still have **NOT** been considered and solved by using those SOTA methods?

Section 3. Proposed Methodology (At Least 3 Pages) (8 Points)

In this section, you need to describe and explain your proposed approach(es) in detail that you have discussed in Section 1. That may include the architecture, workflow, mathematical formulations for learning models/algorithms, code implementation/library, etc., whatever that you need to develop and implement your approach(es) to bridge the above disadvantages and challenging gaps of the problems that you have stated in Section 2.

Section 4. Preliminary Experimental Results and Discussions (At Least 1 Page) (2 Points)

- In this section, you need to describe how you will measure the performance or success of your approach(es) in detail.
- What data, experiments, demo, and/or prototypes will you use and conduct, respectively, to assure that your approach(es) are really performing and successful? Please describe them in detail.
- Your preliminary experimental results should include both the SOTA methods in Section 2 and your proposed methods in Section 3 for the performance comparisons.
- You can use tables, charts, pictures, etc., to show your preliminary experimental results and provide discussions.

Section 5. Lessons Learned (At Least 1 Paragraph) (2 Points)

- Describe your experience and what you have learned so far since you started working on this project?
- What skills and knowledge you have been practicing or new tools and techniques you are working with, that you did not learn and know before?

Section 6. Timeline Schedule for the Remaining Project Tasks (At Least 0.5 Page) (1 Point)

Use the Gantt chart to draw up **a timeline schedule** to lay out all the identified, remaining project work tasks from the above to be undertaken for the rest of the semester week by week.

References (1 Point)

- Provide a list of expected background material (**AT LEAST 10 Papers from the Google Scholar**: **https://scholar.google.com/**) and/or State-of-the-Art Page at Paper with Code: **https://paperswithcode.com/sota**) that you have planned to read and learn about for your AI project. Those papers should be the recent ones **from 2020 to now**. Any additional resources, such as a list of manuals, a list of URLs and tutorials, development tools, software environment, system architecture, programming language libraries, and etc., are highly welcome.
- All the references that you list here should have been **cited in Section 1, 2 and other previous sections** already.
- Use the **APA Style** for the references and citations: **https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_style_introduction.html**.

Grading

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(B) Project Progress Presentation Video with its Slides (15 Points)

1. Prepare a set of professional slides https://www.indeed.com/career-advice/career-development/tips-for-giving-a-great-presentation to cover the above items listed in Sections A1 or A2, respectively. **More visuals and Less Words**.

2. You don't need to restrict yourself for 1 slide for 1 item. You can decide how to present the information, in what proportion per slide, and even in what order. **Please also include each team member's picture on the 1st slide.**

3. Use your slides to create your project progress presentation video to describe and explain your project. **Each team member needs to present in the video. Please turn on the camera when you are recording your presentation video.**

4. You only need to submit the video link and the slides.

5. The grading will primarily be based on the clarity of your project proposal presentation and the quality of your slides. Overall, your understanding of the project, its anticipated scope, timeline, etc., should be clearly articulated. A preliminary feasibility assessment is important.