

# CS 534 Phase 1 - Project Proposal (10 Points)

## (Due: 11:59 p.m. on June 15, 2025)

Your project proposal should include **AT MOST 6-page written document** and **AT LEAST 10-min presentation video with its slides** to include the following sections, answers, and elements. You may include any figures and tables to supplement your explanations and descriptions in your proposal if needed.

**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.**

Please check out the [Group Project Description.pdf](#) and [Group Project Abstract.pdf](#) on Canvas first so that you will have some ideas what project options are available and what topics have been done by your former classmates. **Note that your project should not be the same as any previous projects completed in this course.** Think of a new topic/project in a new domain that you and your teammates are interested in.

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

**Project Deliverables:** Submit a **zip** file that includes your written PDF proposal, the presentation video link only (**NOT the video file**), and the presentation slides about your project to Canvas before the deadline.

### (A1) Written Proposal Content (7 Points)

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

- a. Project Title, Team Members and Photos, and Current Degree Programs (**0.5 Point**)
- b. **1 Paragraph:** What are the motivational background and context of the domain problem addressed by your project? Why is this domain problem important? Please provide some real-world examples and significant statistics with citations to support the importance of this domain problem. (**1 Point**)
- c. **1 ~ 2 Paragraphs:** Describe and explain **at least three** (if your team has three members) or **at least four** (if your team has four members) current state-of-the-art (SOTA) methods with citations that should be able to address the domain problem stated in Part b? Please explain what **advantages** of those methods are and why those methods should be able to address the problem. (**2 Points**)

Note: Those existing SOTA methods should be the methods that have been applied to solve the problems described in the most recent papers, i.e., **from 2020 to present**.

- d. **1 ~ 2 Paragraphs:** How will you evaluate the effectiveness of those SOTA approach(es) listed in Part c on your problem? That is, you need to describe how you will measure the performance or success of those current SOTA approaches described in Part c so 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 Point**)
- e. Create a table that includes each team member's name and their task contributions in this phase. (**1 Point**)
- f. Draw a **timeline schedule** by using the **Gantt Chart** to lay out all the identified work tasks from the above to be undertaken for the rest of the semester week by week. (**0.5 Point**)
- g. 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 present**. 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. Note that all the references that you list here should **have been cited in Part b, Part c, and/or Part d already**. Use the APA Style for the references and citations: [https://owl.purdue.edu/owl/research\\_and\\_citation/apa\\_style/apa\\_style\\_introduction.html](https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_style_introduction.html). (**1 Point**)

The readability and professional quality of your document will also be taken into account when assigning the grade.

**(A2) Written Proposal Content (7 Points)**  
**Option 2 - Innovative/Advanced AI Project**

- a. Project Title, Team Members and Photos, and Current Degree Programs **(0.5 Point)**
- b. **1 Paragraph:** What are the motivational background and context of the domain problem addressed by your project? Why is this domain problem important? Please provide some real-world examples and significant statistics with citations to support the importance of this domain problem. **(1 Point)**
- c. **1 ~ 2 Paragraphs:** Describe and explain **at least three** (if your team has three members) or **at least four** (if your team has four members) 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? **(1 Point)**

Note: Those existing SOTA methods should be the methods that have been applied to solve the problems described in the most recent papers, i.e., **from 2020 to present**.

- d. **1 ~ 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 in Part c that have not been able to completely solve the problem yet? Specifically, please provide a technical contribution summary of your AI work tasks to address those disadvantages and gaps. **(1 Point)**

Note: "**Novel/Advanced methodologies**" means that they cannot be found in **any existing SOTA approaches** or **any advancement/enhancement** that you can make on top of **any existing SOTA approaches** after doing the literature review. Fine-tuning model parameters, training more datasets, applying current SOTA methods on a different domain dataset, etc., by using the same, existing approaches are not counted towards in this category.

- e. **1 ~ 2 Paragraphs:** How will you evaluate the effectiveness of your approach(es) in Part d? 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 in Part c so that you can compare your own method with those SOTA's in terms of the same performance metrics? What data and experiments will you use to ensure your approach(es) really successful that outperforms those SOTA approaches? **(1 Point)**
- f. Create a table that includes each team member's name and their task contributions in this phase. **(1 Point)**
- g. Draw a **timeline schedule** by using the **Gantt Chart** to lay out all the identified work tasks from the above to be undertaken for the rest of the semester week by week. **(0.5 Point)**
- h. 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. Note that all the references that you list here should **have been cited in Part b, Part c, Part d, and/or Part e already**. Use the APA Style for the references and citations: [https://owl.purdue.edu/owl/research\\_and\\_citation/apa\\_style/apa\\_style\\_introduction.html](https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_style_introduction.html). **(1 Point)**

The readability and professional quality of your document will also be taken into account when assigning the grade.

**10% bonus points (extra credits)** will be added to **your final project score** by the end of the semester if your team will choose this project category, **Option 2**, and also show that your proposed methodology will outperform the existing SOTA approaches to solve the real-world problem in terms of accuracy, speed, and/or other related performance metrics.

**(B) Proposal Presentation Video with its Slides (3 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 and 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 Project Title, Team Members and Photos, and Current Degree Programs on the 1<sup>st</sup> slide so that I could have a chance to know you.**
3. Use your slides to create your proposal 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 so that I could have a chance to see you as well.**
4. You only need to submit the video link (**NOT the video file**) 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.