

CPSC 481 – Project Proposal

You can come up with a topic of your choice or pick one from the list below. Think about how AI can be applied to topics covered in this course as well as other courses you have taken (such as CPSC 483, 375 and 458). Think about which algorithms you can utilize to build your application. Consider this project as a way to learn something new – such as new libraries, packages and algorithms.

Your group may consist of 2-4 members, and **everyone must contribute to the project.**

Some example topics include:

- Game playing AI
 - Single player games/puzzles include the Rubik's cube, Mastermind.
 - Non-deterministic games like most card games, games using a dice.
 - Simple games, like Connect Four or Checkers, using algorithms such as Alpha-Beta pruning.
- Spam email classifier
 - Train a naive Bayes classifier to determine if an email is spam or not.
- Sentiment analysis
 - Train a naïve Bayes classifier to analyze sentiment of texts such as product reviews or news articles.
- Recommendation system
 - Create a simple movie or book recommendation system using collaborative or content-based filtering.
- Pathfinding algorithm visualization
 - Implement and visualize classic pathfinding algorithms like A* to find the shortest path in a grid with obstacles.
- Simple chatbot
 - Design and implement a rule-based chatbot using regular expressions and predefined patterns.
- Flight itinerary optimizer
 - Given a list of airports and flight connections, use A* to find the optimal route that visits a set of desired destinations in the least amount of time or fewest number of connections.
- Mobile application with intelligence added

Grading criteria

1. **Proposal (10%)** : Turn in your project proposal by **11/6 (Monday) at 11:59pm**
2. **Contribution (30%)**: The project may have your own contributions. If you are using codes available on the internet or from open source projects, you must define what your contribution is. Typically, you will either apply standard algorithms to a new or under-studied problem (in which case your contribution is the application/implementation), or you will implement a new algorithm/function for an existing application (e.g., a new evaluation function for chess). You may re-use AI algorithms from the textbook. You can also use openly-available software libraries to build your application programs.
3. **Performance evaluation (20%)**: you should consider how your final software will be objectively evaluated. For example, if you build a game player, you will play against other humans or programs and report its performance. If it is based on machine learning, then you will typically evaluate it with open datasets. Other metrics could include time taken by the program, amount of training data required, etc.
4. **Novelty of the idea (10%)**: For example, a pacman or Tic-Tac-Toe games with slight variation is not considered novel or innovative.
5. **User interface (10%)**: Does the UI support all intended functionalities? Is it user-friendly?
6. **Presentation (10%)**: Did you clearly articulate the objective and goal of your project, functionalities and the performance evaluation?

*Presentation will take place during week 16 in class.
7. **Written report (10%)**: The report should be clearly written, without grammatical errors or typos. You should describe all parts of the project and include its performance evaluation.

Project Proposal submission

Write a 1–2 page report (MS Word or PDF) that addresses the following bullet points:

1. Project title
2. Short description of the project
3. Name of the group members
4. Programming language to be used
5. Algorithms to be used
6. Datasets, if used
7. If you're using open-source code or other codes available online, list which ones
8. Rough timeline of what you will be doing each week/how you plan to finish the project
9. Roles and responsibilities – describe who is working on which task

How to submit:

One person from the group needs to submit the file on Canvas by **11/6 (Monday) at 11:59pm**