Project Guidelines

csce774, Spring 2022

A major component of this course is to complete a research project exploring, one or more planning algorithms in depth. In very general terms, the expectations are:

- The project should be related to the **content of the course** in some meaningful way. An obvious choice would be to extend or refine one of the papers we'll read, but this is *not* a requirement. For students already working on research, projects with strong connections to your existing research are encouraged.
- The project should explore a **new idea**, either by attacking a new problem or proposing a new solution to a previously-studied problem. It is *not* sufficient simply to implement one of the algorithms we study in class without any changes. Be creative!
- The project must exhibit good **scholarship**, citing related work and explaining how it is similar and how it differs.
- The project must include an **implementation** of some form, either simulated or using an appropriate physical platform.

The project is expected to require **substantial effort** throughout the remainder of the semester.

To evaluate your progress (and to ensure that it is truly a "term" project rather than a "last two weeks of the term" project), several intermediate submissions are required in addition to the final report. Details for each submission appear below, including rubrics that I will use as a guide for grading your projects. Note that the dates given below are the latest acceptable submission dates. Early submissions are welcome and every effort will be made to give timely feedback to all submissions, including anything submitted before the deadlines.

Submission 1: Topic choice

Select a high-level topic. Submit via a one-sentence email.

Due date: Feb 28

Maximum score: 1

Is the topic submitted on time?	
Does the topic relate to the content of the course in a meaningful way?	
SCORE	

Submission 2: Related work

Investigate existing research on your topic. Submit a report, approximately one page (not counting references cited), briefly describing this work and answering the question "What has already been done in this area?" Cite at least 6 published academic research papers. Use complete references, and format them in some suitable, standard way.

Due date: March 11

Maximum score: 3

Does the report adequately summarize the current state of research in the topic area?	
Are there sufficient references?	
Are the references to published academic research?	
Are the references complete and appropriately formatted?	
SCORE	

Submission 3: Progress report

Submit an early draft of your final report, at least two pages, demonstrating that you have made significant progress in organizing, developing, and implementing your ideas.

Due date: Apr 7

Maximum score: 10

Does the report clearly articulate a new problem or approach?	
Does the report clearly propose an approach to solving this problem?	
Does the report anticipate the technical challenges with the approach?	
Is there evidence of progress on the implementation?	
SCORE	

Submission 4: Project presentation

~~Give a very short presentation describing of your project to the class.~~ Submit a five-minute video, in the form of audio narration over slides, describing your project for the instructor and the rest of the class. Define your problem, describe your approach, and show your results.

Date: ~~Presentations during the scheduled final exam time, on April 27.~~ Submit via email by April 27.

Maximum score: 3

CONTENT	
Did the presenter give a clear statement of the problem to be solved?	
Did the presenter give a concise description of the approach?	
Did the presenter show the implementation and its degree of success?	
FORM	
Did the presentation make good use of the available time?	
Did the presentation stay within the time constraints?	
SCORE	

Submission 5: Final report

Write a complete description of your project and its results, spanning 6–8 pages in the standard IEEE conference format, using writing style and formatting suitable for a published research paper.

Due date: May 1. Must be submitted at least 48 hours before exit interview.

Maximum score: 28

Presentation	
Is the paper complete? Correct length and format?	
Is the writing style appropriate for an academic conference or workshop?	
Is the paper free from grammar problems and typos?	
Are appropriate, helpful figures included?	
Scholarship	
Does the paper cite relevant related work?	
Does the paper explain its relationship to existing work?	
Problem statement	
Does the paper state the algorithm's goals precisely?	
Does the paper make its assumptions clear?	
Are the assumptions reasonable?	
Algorithm	
Is the proposed algorithm stated clearly?	
Does the paper give sufficient motivation and explanation for the method?	
Are there sufficient details to understand and evaluate the method?	
Implementation	
Does the implementation exist?	
Is the implementation complete?	
Does the paper adequately illustrate the implementation?	
Does the implementation match the problem statement given?	
Is the implementation sufficient to evaluate the proposed method?	
Does the paper discuss the observed effectiveness of the proposed method?	
General	
Does the project relate well to the content of the course?	
Does the project explore a novel idea?	
Is there evidence of substantial effort throughout the semester?	
Score	

Submission 6: Exit interview

Meet informally with the instructor after the submission of the final report. Bring a demonstration of your implementation if possible. Describe the ultimate outcomes of your project and answer the instructor's questions about your final report.

Due date: To be scheduled during the week of exams. Must be completed by May 3.

Maximum score: 5

Was the student knowledgeable about all aspects of the project?	
Did the student respond adequately to any technical concerns raised in the discussion?	
Did the student accurately evaluate the success of the project?	
SCORE	