Course Project Description

525.770: Intelligent Algorithms

Overview

As part of this course, the student will research and select (pending instructor approval) a journal article discussing an intelligent system **application** in an area of particular interest to the student. Example applications areas include: fuzzy logic control of an autonomous car; fuzzy logic anti-skid braking systems; genetic algorithms applied to the design of radar antenna systems; genetic algorithm image processing applications; ant colony optimization applied to solving the traveling salesman problem; etc. Purely theoretical / non-applied papers are not allowed.

At the beginning of the semester, you should begin to think about selecting a topic for your project. To ensure the idea aligns with the overall goals of the course, the instructor needs to approve your project proposal before you begin developing your idea. Project topic selection and candidate published papers must be submitted to the instructor by Module 6. At the end of the semester, you will submit your completed project and present your project to the class.

Getting Started

Students are encouraged to begin researching project topics by identifying and reviewing candidate published papers within the first week or two of the semester start date. To get started, the student should select 3-5 potential papers to choose from; select papers based on readability, clarity, **repeatability of the published results**, and your particular interests. All students should submit their topic selection and 3-5 related candidate papers (ordered according to student preference) by the end of Module 6 within Canvas in order to have one of their papers approved by the instructor by Module 7.

Objectives

After applying human systems engineering methods and completing this project, you will be able to:

- Research and evaluate peer reviewed journal articles.
- Identify and describe the problem that will be addressed.
- Summarize the author's approach to solving the problem.
- Compare and contrast the author's results with your own.
- Present your analysis, findings and conclusions in a clear and concise manner.

Independent Project

Since the requirements of this project require you to present your own findings and thoughts, the course project is to be completed independently. Team projects are not allowed.

Submission

1. Your topic proposal will be due by midnight of Day 7 of Module 6. Your topic selection and 3-5 candidate papers should be submitted in Canvas using the appropriate submission link.

2. The final presentation slides are due by midnight of Day 7 of Module 13, as a PowerPoint file (or PDF file format if necessary) submitted in Canvas.

3. The final presentation video (audio narration of the final presentation slides) is also due by midnight of Day 7 of Module 13. It should be submitted in Canvas as an MP4 video (or equivalent).

   Please see the instructions on submitting your final project presentation. You will find the instructions in the "**Final Project Presentations**" folder located within the Syllabus and Course Information section of Canvas.

Plagiarism

Plagiarism is defined as taking the words, ideas, or thoughts of another and representing them as one's own. If you use the ideas of another, provide a complete citation in the source work; if you use the words of another, present the words in the correct quotation notation (indentation or enclosed in quotation marks, as appropriate) and include a complete citation to the source. See the course text for examples.

If you need additional citation guidance, I recommend the Purdue Online Writing Lab (OWL) at http://owl.english.purdue.edu/owl/, which provides extensive information on research writing and citation.

Deliverables & Project Components

The course project is comprised of three major components.

Deliverable	Description	Components
Module 6: Project Topic Selection	Submit a short description of your topic and 3-5 candidate papers that you've selected, ranked in order of preference.	• Project Title • Topic selected • Candidate papers
Final Project Presentation	The final presentation will provide a succinct 10-minute summary (~8-10 slides) of the following project elements: • *Overview of the presentation.* • *Motivation and problem description / setup.* • *Summary of author's approach to solving the problem.* • *Summary of author's published results and compared / contrasted with your results.* • *Summary and (your) closing remarks / conclusions.* The video will be shared with your classmates.	• PowerPoint (or equivalent) Presentation • Recorded video (.mp4) with audio narration of PowerPoint Presentation (no more than 10 minutes)
Project Presentation Slides	Final version of the slides used to record your presentation.	• PowerPoint or PDF file of slides
Project Peer Review	Review all presentations submitted by your classmates. Participate by asking and answering	• Review all presentations • Provide/post at least one comment and one question on each of your classmate's presentations that will be assigned to you for review.

	questions about the presentations.	• Respond to any questions or comments on your own presentation

Grading Rubric

Final Project Presentation				
	Poor (F)	**Fair (C)**	**Good (B)**	**Exceptional (A)**
Student preparation and organization (40%).	Incomplete content; little or no organization	Complete and organized content	Complete and organized content; easy to follow presentation structure	Complete and organized content; easy to follow presentation structure
Student technical understanding of the course project topic (40%).	Rudimentary and superficial; no analysis or insight displayed.	Generally competent; information is thin and commonplace.	Substantial information; thought, insight, and analysis has taken place.	Rich in content; full of thought, insight, and analysis.
Technical preparation and corresponding results (e.g., computer simulation work to replicate results) (20%)	Rudimentary and superficial; no analysis or insight displayed.	Generally competent; information is thin and commonplace.	Substantial information; thought, insight, and analysis has taken place.	Rich in content; full of thought, insight, and analysis.

Course Project will be graded overall as follows:

100–90 = A—Student Preparation, presentation organization and technical results are clear, well defined and understood [rich in content; full of thought, insight, and analysis].

89–80 = B— Student Preparation, presentation organization and technical results are clear, well defined and understood [substantial information; thought, insight, and analysis has taken place].

79–70 = C— Student Preparation, presentation organization and technical results are clear and reasonably defined and understood [generally competent; information is thin and commonplace].

<70 = F— Student Preparation, presentation organization and technical results are not clear or well defined and understood [rudimentary and superficial; no analysis or insight displayed].