Final Project Overview

The final project for ECE495 combines all learning objectives from the course into a single challenging assignment. Nengo neurons will be used to implement an engineering algorithm or to model a biological process. Each cadet will choose a topic that is personally interesting and exciting to them to maximize the learning experience and ensure mastery of course concepts.

The final project will consist of five submissions, each of which require a significant amount of work. As such, there will be no retakes offered. Refer to the course syllabus for additional project overview information.

Submission	Deadline
Literature Survey	October 28 by 2359
Work Plan	October 28 by 2359
Jupyter Notebook Checkpoint 1	November 7 by 2359
Jupyter Notebook Checkpoint 2	November 20 by 2359
Final Jupyter Notebook Submission	December 6 by 2359

Final Project Scoring for Each Submission

1   Significant technical progress has been made since prior submission and all specs are met

.75   Significant technical progress has been made since prior submission and at most three specs are incomplete

.5   Some technical progress has been made since prior submission and at most three specs are incomplete

.25   Some technical progress has been made since prior submission and more than half of the specs are incomplete

0   Minimal to no effort has been made since prior submission

The mean of all submission scores will be your project score. The project will be worth 50% of your final grade.

Literature Survey Specifications

☐ Literature survey is completed in a Jupyter Notebook using markdown (think of this as practice for your code submissions)

☐ At least three peer-reviewed conference or journal publications related to your project objective are cited with in-depth summaries

☐ A discussion on how you will utilize the information from each of the three peer-reviewed journals toward your project is included

☐ Additional articles, generative AI conversations, or other informal publications related to your project objective are cited with brief takeaways

Work Plan Specifications

☐ Work plan is completed in a Jupyter Notebook using markdown (think of this as practice for your code submissions)

☐ Project objective is summarized in one sentence (example: implement Krichmar's path planning algorithm on Nengo)

☐ A notional work plan is included that details how Nengo neurons, nodes, transformations, dynamics, connections, etc. will be used to achieve the Final Project objective

☐ Work plan is split into three sequential segments to be completed by Coding Checkpoint 1, Coding Checkpoint 2, and Final Code Submission respectively

☐ Metrics of success are documented (i.e. how you know you've completed what you set out to do by each submission date)

☐ The final results you will analyze are clearly laid out (describe in words and provide a rough example of a plot(s) or reference a plot(s) from a paper you've read)

☐ Objective and notional work plan have been discussed with ECE495 instructor during a workday, in EI, or over Teams prior to submission due date

Jupyter Notebook Checkpoints 1 and 2 Specifications

- ☐ Code runs error free - get to a good stopping point prior to your submission!

- ☐ Jupyter notebook is saved such that outputs appear upon opening file (and therefore on Gradescope)

- ☐ Jupyter notebook contains detailed methodology within markdown (use course tutorials and labs as a guide)

- ☐ Non-trivial code is commented

- ☐ Technical progress is clear by either code progress or markdown writeup

- ☐ Technical challenges and associated resolutions are documented in markdown

- ☐ Work plans for next checkpoint are documented in markdown

- ☐ Any changes to original work plan are noted and justifications are listed in markdown

Final Jupyter Notebook Specifications

- ☐ Code runs error free - get to a good stopping point prior to your submission!

- ☐ Jupyter notebook is saved such that outputs appear upon opening file (and therefore on Gradescope)

- ☐ Jupyter notebook contains detailed methodology within markdown (use course tutorials and labs as a guide)

- ☐ Non-trivial code is commented

- ☐ Technical progress is clear by either code progress or markdown writeup

- ☐ Technical challenges and associated resolutions are documented in markdown

- ☐ Any changes to original work plan are noted and justifications are listed in markdown

- ☐ Project results are prominently displayed and clearly labeled in Jupyter Notebook

- ☐ An in-depth analysis of project results is included in markdown

- ☐ A path for future work should you have had more time to complete this project is included in markdown