

EE542 – Final Project Proposal
Instructor: Young H. Cho, Ph.D.

The Goal: a Practical Solution to a Real-World Problem

1) Minimum Requirements

- a) Your project must be a solution (at least an attempted solution) to the Real-World problem.
- b) Your implementation must be functional and have results.
- c) Your implementation must be on one of three AI solution paths
 - i) Advanced Reinforcement Learning based solution to a problem (e.g., self-driving car algorithms using CARLA, self-learning AI agent for games, including board games like Go or Chess)
 - ii) Alternate model to Artificial Neural Network (e.g., an alternate perceptron model other than the most popular ones used today, or a memory plus interpolator-based model). The solution must be integrated into existing real-world AI systems that use ANN, such as image-based medical diagnostic systems, video security systems, voice-to-text transcription systems, or generative AI-based systems.
 - iii) Scaling Software Models that are traditionally unscalable (collect data using the traditional models, then train AI models with the simulated data within the range of your interest. Then scale the model across many nodes to produce faster results.)
- d) Your implementation MUST use GPU acceleration for training and/or inference**
- e) There MUST be real-world companies that are working on this problem. This company must be profitable.
- f) If the problem that they are attempting to solve is not generating any profit, understand and explain why they are spending the money to solve the problem.
- g) Interview at least N real-life human beings in-person, Zoom, or over the phone (cannot be some sort of survey) to discuss the problem. N = number of team members X 2 – e.g., for teams of 3, you MUST interview at least 6 people.
- h) The goal of your interview is to validate your project as something that is worth implementing. Therefore, you must present a compelling case to the people you are interviewing and make sure that they truly understand what you are proposing. e.g. they present their problems to you
- i) The recordings of the interviews should be included in the final demo video/presentation. You must get their permission.

2) The Proposal Presentation

- a) Set aside times to meet before the Wednesday lecture with your teammates to discuss at least **THREE** specific domains/topics of interest with known problems
- b) Brainstorm about creative ways to solve that problem
- c) Prepare **THREE** PowerPoint Slides to summarize your Final Project ideas (1 slide per idea) – use pictures and multimedia to advocate your ideas
- d) During the Wednesday lecture, each team will be presenting the idea (5 minutes).**
- e) Your classmates will vote on the best idea

3) Submissions

- a) After the presentation, further discuss the final project with the team and the instructor to finalize the selection and complete and **submit the Proposal Presentation to the Coursistant website by Saturday night.**
- b) The proposal must include a Weekly Schedule and the Milestones
- c) The proposal must include 5 references that validates the importance of the project.
- d) **At the end of each week (Saturdays), you will be uploading Demo Videos of the functional results of your milestone implementations.**