# 11-785 Project Proposal: Catchy Title Here

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## Abstract

High level description and objective of your semester project here. When you find yourself in an elevator with Geoff Hinton, what will you tell him you worked on this semester?

## 1 Introduction

More detailed and overall description of your project, relevancy, and final goals. What you couldn't fit into your 30 second conversation with Geoff Hinton but wish you could have.

## 2 Baseline or Initial Experiments

You should quickly run initial experiments to become familiar with the task(s) or domain(s) you will focus on. If there exists a well-known baseline, try implementing it. If not, think about simply but naive approaches that may at least verify your experimental setup.

Describe your proposed initial experiments and explorations here.

## 3 Proof of Concept

Now you are ready to begin the meat of your project, but you know that development will take some time. To avoid the nightmare scenario in which you spend most of your time working on an inherently flawed approach, you will need to find a toy problem or sub-problem to validate your approach(es) well before the deadline. It is also critical that the problem be simple enough such that the outcome is interpretable and the following questions (and others) can be answered:

*Is it failing because of a bug in our program or because of an issue with out approach? Why isn't this strategy performing as well as we hoped? Is there a reasonable adjustment we can make to do better? Do we need to pivot?*

In this section, describe such a suitable problem and how you will evaluate the results. If applicable, list the different approaches you will be evaluating on this problem (e.g. you have two candidate algorithms for your project task).

## 4 Final Experiments

After you successfully evaluate your approach(es) on a smaller problem, it's now showtime. How will you move beyond this small problem and adapt your technique for the ultimate challenge?

What experiments do you plan to run? This section can be less developed and speak in terms of the results of earlier experiments. You should also more thoroughly describe the setup of these final experiments and how it relates to your end goal.

## 5 FINAL GOALS & EVALUATION

This section should tie together the details of your experimental process and provide a metric for the successfully completed project.

- What do you hope to achieve by the end of the semester?
- How will you evaluate your experiments relative to these end goals?
- What quantitative measure are you measuring the success of your experiments by?
- Have you decomposed your final goal into sub-goals of varying difficulty? You might say, for example, "Result **A** should be achievable based on precedent and result **B** is more ambitious. We wish to work toward **B** and report achievement on **A** first."

## 6 RELATED WORK

Please cite blog posts, papers, projects, and other works you have consulted or plan to consult later. Please provide a sentence or two description that conveys the sources relevance to your project. You should have at least **5** sources.

## 7 DATA & TECHNICAL REQUIREMENTS

Provide expected technical requirements and relevant datasets so the course staff can best support your project needs. What software libraries do you plan to use? What datasets are you using or need access to? Anything else we (the course staff) should know?

REFERENCES

Yoshua Bengio and Yann LeCun. Scaling learning algorithms towards AI. In *Large Scale Kernel Machines*. MIT Press, 2007.

Geoffrey E. Hinton, Simon Osindero, and Yee Whye Teh. A fast learning algorithm for deep belief nets. *Neural Computation*, 18:1527–1554, 2006.