CS 475/675 Project Proposal

Student 1, Student 2, Student 3, Student 4
JHED 1, JHED 2, JHED 3, JHED 4

Abstract

The abstract should consist of two sentences describing the motivation for your project and your proposed methods.

1 Project choice

Choose either a **methods** or **applications** project, and a subarea from the below table.

☐ **Applications**				
☐ Genomics data	☐ Healthcare data	☐ Text data	☐ Image data	☐ Finance data
☐ **Methods**				
☐ Fairness in ML	☐ Interpretable ML	☐ Graphical Models	☐ Robust ML	☐ Privacy in ML

2 Introduction

Explain the problem and why it is important. Discuss your motivation for pursuing this problem. If necessary, give some background on published work in this related area. Clearly state what the input and output is. Be very explicit: "The input to our algorithm is an English sentence, image, etc.. We then use a SVM, neural network, linear regression, etc. to predict COVID case count, text sentiment, etc.." This is very important since different teams have different inputs/outputs spanning different application domains. Being explicit about this makes it easier for readers. 1-2 paragraphs.

3 Dataset and Features

Describe your dataset(s): how many training/validation/test examples do you have? What pre-processing did you do? What about normalization or data augmentation? What is the resolution of your images? How is your time-series data discretized? Include a citation for the dataset(s) you are using. You should also talk about the features you used. If you extracted features using Fourier transforms, word2vec, PCA, etc. make sure to say so. If you have space, include one or two examples of your data in the report (e.g. include an image, a slice of a time-series, etc.). 1-2 paragraphs.

4 Methods

Describe the methods you plan to use: what is your model's hypothesis class? your loss function? your optimization approach? Include enough information to demonstrate your understanding of the methods. You plan to use something not covered in class, explain it in 1-2 sentences, and provide a citation. 1-2 paragraphs.

5 Deliverables

These are ordered by how important they are to the project and how thoroughly you have thought them through. You should be confident that your "must accomplish" deliverables are achievable; one or two should be completed by the time you turn in your Nov 19 progress report.

5.1 Must accomplish

1. A list of 3 goals you must accomplish for a successful project
2. etc.

5.2 Expect to accomplish

1. A list of 3 goals you expect to accomplish as part of the project
2. etc.

5.3 Would like to accomplish

1. A list of 3 goals you hope to accomplish if everything goes well
2. etc.

References

This section should include citations for: (1) Any papers on related work mentioned in the introduction. (2) Papers describing methods that you used which were not covered in class. (3) Code or libraries you downloaded and used.

[1] Alexander, J.A. & Mozer, M.C. (1995) Template-based algorithms for connectionist rule extraction. In G. Tesauro, D.S. Touretzky and T.K. Leen (eds.), *Advances in Neural Information Processing Systems 7*, pp. 609–616. Cambridge, MA: MIT Press.

[2] Bower, J.M. & Beeman, D. (1995) *The Book of GENESIS: Exploring Realistic Neural Models with the GEneral NEural SImulation System.* New York: TELOS/Springer–Verlag.