National University of Singapore

EE5934 Deep Learning Project 1

Exploring the Neural Networks

Deadline
March 6, 2022

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0 Academic Integrity

Academic integrity is the bottom line for all students and scholars engaged in academic activities. This course will spare no effort to maintain the academic integrity. Any violation of this bottom line will not be tolerated. Therefore, please **DO NOT PLAGIARIZE**! Softwares will be used to detect plagiarizing on both codes and reports and we will penalize it by giving zero score. You may refer to materials from Internet or some others, but do remember to make citations such that one can tell which part is actually yours. Submission of this project will be treated as agreeing this statement.

1 Introduction

Welcome to EE5934 Project 1! In this project, you are going to start an exciting journey to explore Deep Learning and Neural Networks by completing the following tasks:

- Task 1. Network Exploration (30%)
- Task 2. Model Interpretation (30%)
- Task 3. Adversarial Attack (40%)

2 Requirements

Before doing the project, please read the requirements carefully (**failure to do so will be penalized**):

- Complete your project in the notebook "EE5934_Project1.ipynb";
- Implement your codes **within** "TODO" and "END OF YOUR CODE", do **NOT** modify any codes outside the answer area;
- Make sure your codes **clean**, **easily readable** (add meaningful comments if needed), and **runnable**;
- Write your answers in the given markdown cells, keep your answers clear and concise;
- Do submit your project before the deadline: **5:59 pm (SGT), 6 March, 2022**, late submission will be penalized;
- This is an individual project, do **NOT** share your solutions with others, we have zero tolerance for cheating.

3 Submission

Please submit your solution to "Files/Project 1/Submissions" on *LumiNUS* before the deadline. The deadline is strictly **5:59 pm (SGT), 6 March, 2022**. Again, late submission will be penalized. Put all the materials in one *zip* file named as "YOUR_STUDENT_ID.zip" (e.g. "A0000000X.zip"). Before zipping, please make sure that:

- The completed "EE5934_Project1.ipynb" file is included, and it should be runnable without any errors.
- Do **NOT** upload any saved models, i.e., the checkpoint files.
- Put the figures you plot (if any) in the "EE5934_Project1/figures" and link them in the notebook correctly (you should use the relative path).

4 Tips for GPU resources:

Running on GPU is more efficient for this project and it is highly recommended. If you do not have GPU resources, you may consider following options:

1 *Google Colab* provides free GPU access.

2 Students may apply *HPC* resources provided by NUS.