

# EE5934/6934 DEEP LEARNING PROJECT#1

## (100 MARKS)

### Introduction

In this project, you will explore the use of image gradients by applying it on the following **three tasks**:

- **Adversarial Attack:** [“Intriguing properties of neural networks”](#)
- **Class Visualization:** [“Deep Inside Convolutional Networks: Visualising Image Classification Models and Saliency Maps”](#) and [“Understanding Neural Networks Through Deep Visualization”](#)
- **Style Transfer:** [“Image style transfer using convolutional neural networks”](#)

Please go through the above reference papers very carefully. You are expected to understand **how to accomplish each task** using the methods presented in the papers and **write code to implement them** by completing Project1.ipynb which is available in Project1.zip from LumiNUS.

Please **take careful note** of the following (failure to do so could incur penalties):

- your code **MUST** be kept within "TODO" and "END OF YOUR CODE";
- do **NOT** modify the definitions of the functions in Project1.ipynb;
- write **“clean”** (easily readable) code and check to make sure it runs/executes;
- do **NOT** share your solution code with others; **submit your own work/code**; there will be **penalties for cheating** and late submission.

### Project#1 submission (Deadline: 6PM, Saturday 7 March 2020)

- I. Export your notebook file Project1.ipynb to an html page and include it in the Project1 folder. Please make sure that the **submitted notebooks have been run** and **the cell outputs are visible**.
- II. **Compress** the Project1 folder into a zip file and **rename it** as follows before uploading it to LumiNUS: “YourStudentNumber\_Project1.zip”.

### Grading Notes

The each task will contribute to your overall grade for Project#1 as follows: **Adversarial Attack** (20%), **Class Visualization** (20%) and **Style Transfer** (60%). Your submission will be assessed on the quality, correctness and efficiency of your codes. You are also required to provide an analysis of the “style transfer” part.