CSCI S-89 Introduction to Deep Learning
Final Project Requirements

Final Project Description:

Each student must select a topic related to Deep Learning from the list of available topics. Alternatively, you can suggest your own topic. The final project must meet requirements as outlined below to demonstrate selected technology or use case.

Please notice that the final project is an individual effort. In case you want to work in teams, you need to get an approval from the instructor. Please keep in mind that the expectations in this case are higher and not every group proposal will be approved.

The purpose of the final project is for us to learn practical applications of Deep Learning technology. Please write your final project report as a tutorial or a learning tool. All project materials including all code will be made available to the class. Please do not include any proprietary code or code you do not want to become public. This does not mean that you can do a project and then refuse to share your code. No working code, no grade. Please deliver your projects using Keras or TensorFlow APIs.

Please keep in mind that teaching staff does not provide guidance on your final project implementation. You must do the research yourself. Once you sign up for a topic, the topic is yours.

Your project must demonstrate a Deep Learning related method or use case and include a software demonstration. Your project must include a visualization component to present a graphical representation of results. This project is not a research paper but rather a technology demonstration and a tutorial.

Final Project Requirements:

1. Define a problem statement as to what you will solve using selected technology.
2. Select a data source (there are many data sets available online).
3. Develop/implement/code a solution for the specified problem using selected data source and selected technology using Keras or TensorFlow APIs
4. Produce a visualization of your data/results.

Documentation Requirements:

1) **Demo/solution implementation and working code:**

   Produce a single working demo that meets your problem statement and provides a full implementation of your solution. Provide neatly organized and complete working code with comments. Please note that a project will not be given any points if a

working implementation and code are missing. Please provide the URL to your full data source. If your data set is larger than 10MB, please do not upload your data set. In such a case, please provide only a sample of your data with the rest of your submission.

2) **Slides:**

Produce a set of Power Point slides (10-20) with a few snapshots of your demo which captures the key points: your problem statement, what the technology does, your demonstration and pros/cons. The first page of your Power Point slide must have a standard format that we provide. Please use white background for all your Power Point slides. White background makes slides readable, printable and presentable on YouTube. Place URLs of your YouTube videos on the last slide. Note: The filename should start with the topic name followed by your name

3) **Report:**

Produce a detailed document with a complete description of analyzed technology or use case including all installation and configuration steps. Your report will start with your name and project title. Detailed installations and configuration is required. Your colleagues must be able to reproduce your work based solely on the steps you have documented**.** Describe your problem statement, data set, installation/configuration, results, what worked, what did not and why not, and any lessons learned. Report must show all steps to reproduce examples that you developed.

a) The first page of your report should contain your name, the project title, and one page summary (abstract).
b) Please include page numbers.
c) You can upload doc (or docx, or pdf). However, submitting a Jupyter notebook only is not acceptable.
d) Please include link to your YouTube 7-15 min video.

4) **15 min YouTube presentation:**

Produce a 7-15 minute YouTube presentation. This video will contain a summary of the technology and details of your project and results.

Submission Instructions:

Please upload the report and slides separately. Also, upload a zip file that contains your software and data files.

Grading criteria:

Final Project Selection:	2 points

Project Report and practical software code example:	7 points
PowerPoint Slides:	3 points
7-15 minute YouTube video presentation:	3 points