

CSCE 5218 & 4930 – Deep Learning

Spring 2022

Course project

The aim of this course is to equip the students with the ability to implement their own deep neural networks to solve a real problem. A course project can well serve this goal by allowing you to apply what you have learned in class to a problem of your interest in different areas (e.g., computer vision, natural language processing, etc.)

Note 1: The course project can be individual work or teamwork (with up to three members in the team).

Note 2: The course project **MUST** be related to deep learning.

Important dates

The timeline of the course project is as follows

- Proposal deadline: **February 28, 2022**
- Final report deadline: **April 17, 2022**
- Presentation: **TBD**

Start the project as soon as possible.

Option 1: Select from a list of suggested topics

You can select a topic from the following list for your course project:

- Image classification
- Object detection
- Segmentation
- Tracking
- Image denoising
- Image Super-resolution
- Machine language translation
- Visual question answering
- Text generation
- Speech recognition

Option 2: Suggest your own topic for the course project

You can select a topic from any field that may interest you and work on it as a course project. Your course project could be (1) developing a completely new model for a task; (2) improving an existing model by adding modifications to boost the performance; or (3) applying a model to a new task.

Option 3: Choose a competition on Kaggle

You can opt to participate in a public competition on Kaggle (<https://www.kaggle.com/>), but you need to apply deep learning for this task.

Requirements for the course project

For the project, each team requires to complete

- **Project proposal:** On the indicated due date, each team needs to submit the proposal that consists of abstract, introduction, related work, potential solution, datasets and metrics for experiments, and reference.
- **Final report:** On the indicated due date, each team needs to submit a final report which is similar to a research paper. Besides all the components in the proposal, the details of the proposed approach, implementation, and experimental analysis and results should be included in the final report.

- **Project presentation:** All teams need to present the project in class.

Submission

The project proposal and final report need to be submitted to Canvas. Every student requires to submit an individual copy. All members in the same team can share the proposal and final report, but contributions should be indicated.

Format of proposal and final report

Please follow [CVPR \(latex\)](#) to format your proposal and final report. The proposal and final report should be strictly limited up to 4 and 8 pages, respectively, including references, but they should not be too short!

Your proposal and final report should be structured like a research paper, consisting of Abstract, Introduction, Related Work, Methodology, Experiments (with analysis), Conclusion and References.

You can find many good examples for the course project report at [here](#) (remember to format it using CVPR style).

Grading policy

Grading of the course project will be based on the following components:

- Project proposal: 30%
 - Final report: 50%
 - Presentation: 20%
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