COMP 5900F, Fall 2022
Advanced Machine Learning

Meetings

Mondays 11:35-2:25 pm
Start date: September 12

Instructor

Majid Komeili
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Course Website

http://people.scs.carleton.ca/~majidkomeili/Teaching/COMP5900-F22/home.html
Note: We also use Brightspace for posting assignments and some other materials.

Course Description

Machine learning (ML) is the scientific study of algorithms and statistical models that computers use in order to perform a specific task effectively without using explicit instructions, relying on patterns and inference instead. It is seen as a subset of artificial intelligence. This course will cover advanced topics in machine learning such as deep learning including CNNs, RNNs, GANs, Deep clustering, transfer learning, domain adaptation, few-shot learning, zero-shot learning, self-supervised learning and Interpretability of ML methods. The format of the course will be a mix of lectures and paper presentations.

Topics

This is an overview of the kinds of topics the course could cover.

- Convolutional Neural Networks,
- Recurrent Neural Networks,
- Generative Adversarial Networks,
- Transfer Learning,
- Few-shot Learning,
- Zero-shot Learning,
- Self-supervised Learning,
- Domain Adaptation,
- Deep Clustering,
- Interpretability of ML

Prerequisite

You are expected to have a reasonable background in machine learning and be familiar with probability, statistics, linear algebra, calculus and Python.

Evaluation

- Two assignments (A1=10%, A2=15%)
- Paper presentations (20%)
- Class participation and discussion (5%)
- Final Project (5% proposal, 5% in class presentation, 40% Report)

Information on Academic Accommodations

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, see here for more information.

Student Academic Integrity Policy

Every student should be familiar with the Carleton University student academic integrity policy described here.