Technology & Visual Arts

AIDI 1003 Machine Learning Frameworks

Thursday, 4pm – 7pm EST

Course Description: Machine learning frameworks help accelerate the creation of Artificial Intelligence (AI) systems by utilizing an established set of algorithms, libraries and models specifically designed for machine learning systems. Students gain experience working with an AI framework by learning how to prepare and load the data, prepare a model, train and test the model to perform supervised and unsupervised learning.

Instructor: Archit Garg

Contact Information: archit.garg@georgiancollege.ca

Resources: We do not have a single textbook, depending on the topic the instructor will use presentations/notes to illustrate the examples. Supplementary reading material will be provided for each topic to learn and understand the topics.

Expectations for Success:

Students are expected to have the following background:

- Knowledge of basic computer science principles and skills, at a level sufficient to write a reasonably non-trivial computer program.
- Familiarity with the basic probability theory.
- Familiarity with the basic linear algebra

Projects will involve programming and understanding of concepts described in lectures.

Note: You are welcome to share all reading materials and have discussions, but answers to anything that is submitted for grading (exercises, exams, code) must be yours, and yours only.

Evaluation/Grading Rubric

Project 1	20% of the overall grade
Project 2	20% of the overall grade
Project 3	20% of the overall grade
Exam 1	20% of the overall grade
Exam 2	20% of the overall grade

Schedule of Activities:

Week	Date(mm/dd)	Lesson	Assignment/Exam	Due Date
1	01/13	ML Foundations		
2	01/20	Supervised ML Algorithms		
3	01/27	Unsupervised ML Algorithms		
4	02/03	ML Feature Engineering		
5	02/10	Detailed Discussion on Linear Regression, SVM, Decision Trees, Random Forests	Project-1	Sun 13th Feb 11:59pm EST
6	02/17	Detailed Discussion on K-Means clustering, Hierarchical Clustering and DBSCAN		
7	02/24	Going over real-world datasets		
	03/3	**Reading Week (Feb 28th - Mar 4th) No Classes**		
8	03/10	Exam - 1	Exam - 1	Thu 10th Mar, 4 pm – 6pm EST
9	03/17	Intro to Deep learning, Linear Algebra & Comparison of ML Frameworks	Project-2	Thu 17th Mar 11:59 pm EST
10	03/24	Intro to TensorFlow		
11	03/31	Intro to Keras Framework + Neural Nets		

12	04/07	Neural Nets contd.	Project-3	Thu 7th Apr, 11:59pm EST
13	04/14	Recommendation Systems		
14	04/21	Exam - 2	Exam - 2	Thu 21st Apr, 4pm – 6pm EST

The sequence and content of this syllabus may change due to unanticipated opportunities or challenges, or to accommodate the learning styles of the students.

Due to extenuating circumstances and to accommodate the need for this program to be offered remotely, there may be some modifications to the evaluation/assessment. This has been approved by the Dean of Technology & Visual Arts (TVA), as directed by the Vice President, Academic.