School: Efi Arazi School of Computer Science M.Sc.

Deep Learning

Lecturer:

Dr. Chaim Baskin   chaim.baskin@post.idc.ac.il

Tutors:

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Teaching Assistant:

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Course No.:	Course Type :	Weekly Hours :	Credit:
3600	Lecture	3	3

Course Requirements :	Group Code :	Language:
Final Paper	221360001	English

Prerequisites

Prerequisite:

52 - Calculus I
53 - Calculus II
54 - Linear Algebra I
55 - Linear Algebra II
56 - Discrete Mathematics
59 - Data Structures
69 - Logic And Set Theory
417 - Introduction To Computer Science
3141 - Machine Learning from Data

Students who took one of the courses listed below will not be allowed to register to the course Deep Learning (3600):

3598 - Deep Learning and Image Understanding

◎ Course Description

Deep learning is a powerful and relatively new branch of machine learning. In recent years it has been successfully applied to some of the most challenging problems in the broad field of AI, such as recognizing objects in an image, converting speech to text, or playing games. In many such tasks, the state-of-the-art performance today is attained by deep-learning algorithms, in some cases surpassing human-level performance.

📋 Course Goals

This course will focus on the theory and algorithms behind deep learning, as well as software techniques that allow efficient training of deep learning algorithms. It is a graduate-level course that provides both the necessary theoretical background and the hands-on experience required to be an effective deep learning practitioner or to start on the path towards deep learning research.

🅰️ Grading

4X Home assignments and final project

📘 Learning Outcomes

1. Understand the key notions of deep learning, such as learning regimes, model types, optimization ,and training methodologies.
2. Be able to apply deep learning algorithms to real-world data and problems.
3. Know how to effectively use python and PyTorch to implement models and algorithms from the recent literature.
4. Know how to leverage GPUs and write custom computational kernels to accelerate both training and inference.
5. Perform a project using the studied notions and techniques.

📖 Lecturer Office Hours

Friday at 11:20-12:00 (Should be scheduled before by e-mail)

🕐 Teaching Assistant

Mr. Moshe Kimhi

💬 Reading List

Deep learning An MIT press book by Ian Goodfellow and Yoshua Bengio and Aaron Courville