



# Course program and reading list

Semester 2 Year 2024

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

## Synthetic Media Detection – Seminar

**Lecturer:**

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<b>Course No.:</b>	<b>Course Type :</b>	<b>Weekly Hours :</b>	<b>Credit:</b>
3577	Seminar	3	3

<b>Course Requirements :</b>	<b>Group Code :</b>	<b>Language:</b>
Final Paper	242357701	Hebrew

**Prerequisites**

**Equivalent:**

164 – Introduction to Computer Graphics

**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
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Course Description

Advanced AI tools can generate images, video, and sound with high fidelity, making it difficult to distinguish between real and generated media. These tools have many legitimate use-cases, but also more nefarious and dangerous implications. In this seminar we will learn about methods to detect synthetic media. For example, how can an algorithm distinguish between a photo captured by a camera, and one that was synthetically generated by Dall-E-3?

This is a seminar, meaning that students will read and present academic papers throughout the semester. The format is a variation of: <https://colinraffel.com/blog/role-playing-seminar.html>

The goal of the seminar, besides in-depth understanding of the material, is learning to read academic papers, critically evaluate papers, and present research in an approachable and legible manner.

The course is open to graduate students, and to exceptional undergrads.

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## Course Goals

- Read and understand state-of-the-art computer vision and computer graphics papers.
  - Learn to effectively read a research paper.
  - Learn to critically evaluate a research paper.
  - Learn to present your research.
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## Grading

- Read, understand, and present a research paper to the class: 65%. Out of which:
    - Understanding (did the student grasp the main ideas and the details of the papers): 25%
    - Explanation (how well were the ideas conveyed to others): 25%
    - Presentation (slide quality, interaction, demos, question answering, etc.): 15%
  - Review, in writing, 2-3 other research papers: 20%
  - Other small tasks throughout the semester, such as reporting on the authors of a paper: 15%
  - A bonus might be given for particularly complicated papers, exceptional class participation, etc.
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## Reading List

Recent research papers. We will jointly finalize the list after the first week of class.