Modern Computer Vision

00970202 | Technion | Faculty of Data and Decision Sciences

Winter 2026-27 | Syllabus

Instructor: Assaf Shocher | assafshocher@gmail.com

Teaching assistants: Amit Shmidov, Roi Ben-Gigi, Tal Aloni

Meetings: Sundays, November 1, 2026 - January 24, 2027. Lecture 13:30-16:30; tutorial 16:30-17:30 immediately afterward. Times carried over from Spring 2026, pending confirmation. Room to be confirmed.

Credits: 3.5. **Prerequisites:** 00940412, 01040166, 00960411.

Grading policy

The final grade has two equally weighted components: homework assignments (5 sets), 50%; final project, 50%. There is no final exam.

Homework assignments

There are 5 homework sets distributed throughout the semester. Each includes theory, from-scratch implementation, and applied programming. Release and due dates in the planned schedule are provisional; Winter assignment packages and submission links will be provided when released.

Late submission policy

Students may submit homework late with no questions asked, provided that the total accumulated delay across all assignments does not exceed one week (7 calendar days). No per-assignment approval is needed. For exceptional circumstances beyond this allowance, such as medical emergencies or reserve duty, contact the course staff.

Final project

A small, self-contained piece of original research in computer vision, completed in groups of 4-5. Submit a one-page proposal, a 2-3-page LaTeX report, a public GitHub repository with reproducible code, and a five-minute video. The video may use any format: a recorded talk is welcome, and an AI-assisted explanatory video, for example in the style of 3Blue1Brown, is encouraged. No live project talk is required. Deadlines will be announced; final submission will be after the exam period. See the project handout for full instructions.

Academic integrity

For homework, students may discuss general ideas with peers, but all submitted code and written work must be their own. Copying solutions from other students, the internet, or AI tools constitutes a violation. For the final project, students are free to use any sources, including AI and existing works, as long as all sources are disclosed and all external code, methods, or models are cited.

Communication

Announcements and materials are managed through the course website and Moodle. For questions, use the course forum; for personal matters, email the course staff directly. Winter Moodle and submission links will be posted when available.

Planned weekly schedule

Winter 2026-27 | All listed dates are Sundays

The 12 previous lecture topics retain their order. January 24 is an additional session, with its topic to be announced. Homework dates are provisional. Prior-semester materials are labeled on the website.

All 11 taught tutorials from the previous course retain their original order, starting with PyTorch + Point Ops on November 1. A new Vision-Language Models (VLMs) tutorial is scheduled for January 17. Exactly one lecture and one tutorial remain unassigned, both on January 24, with topics to be announced.

Wk	Date	Lecture	Tutorial	Planned HW
1	Nov 1	Basics of Imaging	PyTorch + Point Ops	HW 1 released
2	Nov 8	ML Basics	Linear Classification	-
3	Nov 15	Neural Networks	PyTorch Autograd	HW 1 due; HW 2 released
4	Nov 22	Frequencies & Sampling	Image Pyramids	-
5	Nov 29	CNNs	Adversarial Examples	HW 2 due; HW 3 released
6	Dec 6	Training & Architectures	Transformers	-
7	Dec 13	Geometry & 3D	Deep 3D	-
8	Dec 20	Motion + Localization	Detection and Segmentation	HW 3 due; HW 4 released
9	Dec 27	Generative Models 1	Text to Image	-
10	Jan 3	Generative Models 2	Generative Image Editing	HW 4 due; HW 5 released
11	Jan 10	Self-Supervision + Interpretability	Efficiency	-
12	Jan 17	Neural Rendering	Vision-Language Models (VLMs)	HW 5 due
13	Jan 24	Additional session - topic to be announced	To be announced	-

Calendar basis

The official semester runs October 28, 2026 - January 28, 2027. Its 13 teaching Sundays run November 1 - January 24. December 6 is a teaching day: the Hanukkah closure is December 9-11. The current August 2026 calendar supersedes older planning calendars.

Official Technion semester dates | Technion academic calendar

Winter 2026-27 course website | Previous course: Spring 2026