

Sabanci University
Computer Engineering Department
EE 417 Computer Vision
2023-2024 Spring

Section	Instructor	Lectures	Office Hours
Single	Erchan Aptoula	Monday 11.40-13.30 FASS G006, Friday 15.40-16.30 FASS 1050	Friday 10.30-11.30
	Teaching assistant	Lab session: Monday 16.40-18.30 FASS G022	
	Seçilay Kutal	https://sabanciuniv.zoom.us/j/94874621981	Wednesday 9.00-10.00

Week	Topic (The schedule is tentative and subject to change)
1	Introduction and image filtering
2	Image pyramids and frequency domain filtering
3	Hough transform
4	Feature and corner detection
5	Content description
6	Warping – midterm 1
7	Homographies and RANSAC
8	Geometric camera models and calibration
9	Two view geometry and stereo
10	Optical flow and tracking
11	Stereo vision and depth estimation – midterm 2
12	Structure from motion
13	Object detection and recognition
14	Deep learning

This course provides a comprehensive introduction into computer vision. Depending on progress speed, an introduction to deep learning will also be provided towards the end of the semester. Students will learn the basic concepts of computer vision as well as acquire hands-on experience through laboratory sessions where they will practice and deal with real-life academic and industrial problems.

Textbooks

R. Klette, Concise Computer Vision: An Introduction into Theory and Algorithms, 2014.

Gonzales and Woods, Digital Image Processing, 4th Ed, 2017 (Optional reading)

R. Szeliski, Computer Vision and Applications, 2010 (Optional reading)

R. Hartley and A. Zisserman, Multiple view geometry in computer vision, 2nd Ed, 2000 (Optional reading)

Evaluation

Midterm exam-1 (30%): at the classroom, closed book exam.

Midterm exam-2 (30%): at the classroom, closed book exam.

Final exam (40%): at the classroom, closed book exam.

Makeup exams

Only for students with official excuses (e.g. medical reports, etc). Only one makeup exam will be organized, in case it is needed, for each of the exams.

Attendance: will be collected regularly.

Communication: All communication will run through SUcourse (questions, announcements, etc)

Honor code: All cases of confirmed cheating will be reported for disciplinary action.

Prerequisites: CS201, calculus, linear algebra, and Python programming.