

FMAN85 COMPUTER VISION (6hp)

Period 3, 2019

Lecturer: Carl Olsson, tel. 046-222 85 65, email calle@maths.lth.se, room MH:435.

Lectures: Carl Olsson

Tuesdays 8–10. MH:Gårdingsalen

Wednesday 10–12 (study weeks 1–6). MH:Gårdingsalen.

Computer Exercises: David Gillsjö & David Nilsson

Mondays 13–15 (study weeks 2-6). MH:230.

Assignments: There are five mandatory assignments. They contain both exercises that should be solved by hand and computer exercises. You can get help with these (and work with them) during the computer exercise sessions.

Course Literature:

Lecture notes available on the course homepage. (In addition a few scientific papers might be handed out during the lectures.)

Course homepage: <http://www.maths.lth.se/~calle/datorseende19/index.html>

Registration: Use Studentportalen. Re-registrations cannot be done through Studentportalen but has to be done manually by the administrators. Other problems with registration are also handled by the administrators (send an email to expedition@math.lth.se).

Project: It is possible to extend the course with 3 additional hp by doing a project in applied mathematics (FMAN40). A list of possible projects will be available at the course homepage. It is also possible to suggest your own ideas for projects.

Examination: Grade 3 (pass) requires that all home assignments have been handed in and been approved.

To achieve a higher grade (4 or 5) you also need to complete the take-home-exam. The exam will be handed out whenever you choose in the exam week or in the first week of study period 4. However, it should be completed within 48 hours after collecting it. (That means that you can't keep it during the weekend).

Student Reception:

The student reception of the mathematics institution is located on the fifth floor (room MH:540) in the mathematics building. The administrators are Patricia Félix Poma de Kos, tel. 046–222 80 68 and Eva-Lena Borgström, tel. 046–222 85 30, email expedition@math.lth.se.

Preliminary plan for lectures (L), assignments (A) and computer exercises (CE):

22/1	L 1	MH:Gårdingsalen	... Course information, Introduction, The pinhole camera
23/1	L 2	MH:Gårdingsalen	.....Homogeneous coordinates and projective geometry
28/1	CE 1	MH:230	.....Exercises assignment 1
29/1	L 3	MH:Gårdingsalen	..... Camera calibration, DLT, SVD
30/1	L 4	MH:Gårdingsalen	..... Features, Triangulation with DLT
4/2	CE 2	MH:230	.....Exercises assignment 2
5/2	L 5	MH:Gårdingsalen	..... Epipolar geometry, The fundamental matrix
6/2	L 6	MH:Gårdingsalen	.....Cameras from F, The essential matrix
	A 1		..... Assignment 1 due this week.
11/2	CE 3	MH:230	.....Exercises assignment 3
12/2	L 7	MH:Gårdingsalen	..... Model fitting, reprojection errors, robust metrics
13/2	L 8	MH:Gårdingsalen	..... RANSAC, minimal solvers
	A 2		..... Assignment 2 due this week.
18/2	CE 4	MH:230	.....Exercises assignment 4
19/2	L 9	MH:Gårdingsalen	..... Reconstruction and optimization
20/2	L 10	MH:Gårdingsalen	... Subspace learning, Affine cameras, Deformable models
	A 3		..... Assignment 3 due this week.
25/2	CE 5	MH:230	..... Exercises, assignment 5
26/2	L 11	MH:Gårdingsalen	.....Stereo and Surfaces. Project introductions.
27/2	L 12	MH:Gårdingsalen	..... Global optimization in Structure from Motion.
	A 4		..... Assignment 4 due this week.
4/3	L 13	MH:Gårdingsalen	.....Repetition. Old exams.
	A 5		..... Assignment 5 due this week.