DD2423 Image Analysis and Computer Vision 7.5 credits

Bildbehandling och datorseende

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

The official course syllabus is valid from the autumn semester 2021 in accordance with Head of School decision: J-2021-0878.Decision date: 15/04/2021

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After completing the course with a passing grade the student should be able to:
• identify basic concepts, terminology, models and methods in computer vision and image processing
• develop and evaluate a number of basic methods in computer vision and image processing systematically
• choose and apply methods for processing of image data related to image filtrering, image enhancement, segmentation, classification and representation,
• account for basic methods in computer vision as multiscale representation, detection of edges and other distinctive features, stereo, movement and object recognition to
• later as a working professional be able to decide how basic possibilities and limitations influence the choice of methods in image processing and computer vision for specific applications
• independently be able to implement, analyse and evaluate simple methods for computer vision and image processing
• be able to read and apply professional literature in the area.

Course contents

Overview about aims and methods for image analysis, image processing and computer vision. Orientation about biological seeing and visual perception. Properties of the perspective image formation.

Basic image analysis: signal theoretical methods, filtering, image enhancement, image reconstruction, segmentation, classification, representation.

Basic computer vision: multiscale representation, detection of edges and other distinctive features. Stereo and multi-camera systems. Object recognition, morphology.

Examination

• TEN1 - Written exam, 3.5 credits, grading scale: A, B, C, D, E, FX, F

• LAB1 - Laboratory Work, 4.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Ethical approach

• All members of a group are responsible for the group's work.

- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.