DD2427 Image Based Recognition and Classification 6.0 credits

Bildbaserad igenkänning och klassificering

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

Establishment

Course syllabus for DD2427 valid from Autumn 2016

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

Single course students:

SF1604 Linear Algebra, SF1625 Calculus in one variable, SF1626 Calculus in Several Variables, DD1337 Programming or corresponding courses

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Language of instruction

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

Intended learning outcomes

After the course you should be able to:

- identify basic notions, terminology, theories models and methods for classification of data,
- develop and systematically evaluate a number of basic methods for classification of data,
- experimentally evaluate algorithms for classification and recognition of objects in digital gray value images,
- choose appropriate method in order to automatically solve a given classification problem,
- know about theories of how the brain processes visual information for classification,

in order to

- be able to solve general problems of data representation and classification,
- be able to implement, analyze and evaluate simple systems for automatic classification of images,
- obtain a broad base of knowledge in order to be able to acquire information about and read literature in the field.

Course contents

- Representation and feature extraction in digital images
- principles of recognition and classification, Bayesian decisions
- discriminant functions, neural networks, support vector machines
- learning, optimization of classifiers
- overview of recognition in biological systems
- examples of recognition: handwritten text, faces, objects.

Course literature

Föreläsningsanteckningar, delas ut vid kursstart.

Examination

- INL1 - Assignment, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 1.5 credits, grading scale: P, 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.

In this course all the regulations of the code of honor at the School of Computer science and Communication apply, see: http://www.kth.se/csc/student/hederskodex/1.17237?l=en_UK.

Other requirements for final grade

Laboratory assignments (LAB1; 1,5 university credits)
Hand in exercise (INL1; 1,5 university credits)
Examination (TEN1; 3 university credits)

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.