DD2413 Social Robotics 7.5 credits

Sociala robotar

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

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

Establishment

On 2019-10-15, the Head of School of EECS has decided to establish this official course syllabus to apply from the autumn semester 2020 (registration number J-2019-2098).

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

Completed course equivalent DD1320 Applied computer science.

Language of instruction

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

Intended learning outcomes

On completion of the course, the students should be able to

- apply different concepts within social robotics
- choose and justify efficient calculation methods for the ability of social robots to perceive, make decisions and move
- use suitable software design and tools to develop applications for social robotics
- design, analyse and document experiments in human-robot-interaction (HRI)
- demonstrate understanding of the social and ethical aspects of the design, the development and the use of social robots.

Course contents

- Introduction to the field: types of interaction, anthropomorphism and embodying, design principles of social robotics.
- Building of social robots: generic system design, software components and systems.
- The robot perception of the user: different modalities and sensor fusion.
- Verbal and non-verbal communication: dialogue, movement and animation.
- Social reasoning and decision making.
- Experiment design how to design and carry out HRI-experiments, common measurements for HRI, annotation of data and behavioural analysis.
- Social learning.
- Cooperation between man and robot.
- Application areas: remote-controlled robots from control to semiautonomous, socially assisting robots for education and healthcare.
- Social and ethical considerations of use in social environments.

Examination

- LAB1 - Laboratory work, 1.5 credits, grading scale: P, F
- LAB2 - Laboratory work, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- PRO1 - Final project, 3.0 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.

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.