DT2112 Speech Technology 7.5 credits

Talteknologi

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

Course syllabus for DT2112 valid from Autumn 2012

Grading scale

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

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

Single course students: At least 60 ECTS of which 30 ECTS within Mathematics or Computational Lingvistics. Furthermore English B, or equivalent.

Language of instruction

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

Intended learning outcomes

The participants shall after completion of the course be able to:

- give short descriptions of speech from the acoustic, phonetic, and linguistic perspectives
- explain how computers recognize speech and speakers with statistical methods, and evaluate the recognition results
- describe and judge different methods used to produce speech with computers
- analyze speech-driven dialogue systems with respect to application, components, functionality and user aspects
- give an account of available state-of-the art speech technology and exemplify the current speech research on e.g., mobile systems and IT applications
- apply the theoretical knowledge in small speech technology projects.

Course contents

The course Speech Technology discusses processes and systems for information transmission using speech as its medium and also gives basic knowledge of speech, language and hearing. The course contains sections discussing:

linguistic theory and phonetics

speech production by humans (speech physiology and acoustics) and computers (text-to-speech synthesis)

speech perception by humans (hearing and psycholinguistics) and computers (speech recognition)

methods to automatically verify speaker identity (speaker identification)

multimodal dialogue systems for human-computer interaction with speech and vision

practical studies and experiments with text-to-speech and speech-to-text.

Course literature

R. Rodman (1999). **Computer Speech Technology**. Artech House

Kompletterande särtryck som görs tillgängliga via kursens hemsida.

Examination

- INL1 - Assignments, 1.5 credits, grading scale: P, F
- LAB1 - Laboratory Work, 1.5 credits, grading scale: P, F

- TEN1 - Examination, 4.5 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.

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

One written examination (4,5 hp), a laboratory course (1,5 hp) and an essay (1,5 hp).

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.