DT2470 Music Informatics 7.5 credits

Musikinformatik

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

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

• Completed course DT1130 Spectral transforms 7.5 credits or EQ1220 Signal theory 7.5 credits or equivalent course.
• Completed course DD2421 Machine learning 7.5 credits or EQ1220 Signal theory 7.5 credits or equivalent course.

Language of instruction

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

Intended learning outcomes

After passing the course, the student should be able to
• explain how music can be represented in reality and in the computer,
• account for how feature extraction works and explain why it is needed,
• summarise and explain which distinctive features that can be extracted from a music signal, based on time, frequency and time-frequency,
• use existing software libraries for feature extraction and interpret distinctive features that have been extracted from a music signal,
• recommend methods for comparing and modelling of music data,
• design and implement own methods for modelling of music data,
• evaluate a given method for modelling of music data and explain its limitations, in order to
• be able to describe how information on different abstraction levels can be extracted from music data (acoustic as well as symbolic) and be used in many applications (e g search, retrieval, synthesis),
• be able to design algorithms for handling and modelling of music data as well as evaluate their performance,
• be able to appreciate the latest technology in music informatics and build on it.

Course contents

Overview of music informatics, its history and applications as well as a review of basic principles, such as music representation, analog to digital conversion and Fourier transform.
Feature extraction that shows how music data can be described in different domains e g time, frequency and time-frequency.
How music content at different levels of abstraction can be expressed and compared with distinctive features.
Ways to model music data by means of statistical machine learning methods.
Evaluation of models of music data and their application in reality.

Examination

- LAB1 - Laboratory work, 3.0 credits, grading scale: P, F
- PRO1 - Project, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- UPP1 - Written report, 1.5 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.

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.