**Master Thesis Project**

**English title:**

**Danish title:**

**Name: xxxx**

**Periode** dd.mm.yyyy-dd.mm.yyyy, ECTS 30 (usually 22 weeks)

**Supervisors:**

**Description:**

(Example) Signal processing and machine learning methods for music information retrieval and organization is an area of increasing interest. The project focuses on the challenging problem of accurately aligning a music audio steam with associated lyrics. This is particularly interesting for karaoke systems. The project will be based on current state-of-the-art literature and aims at producing a demonstrator which can be used to test specifications and requirements related to accuracy, robustness and usability of automatic alignment algorithms in relation to a karaoke application.

**Timeline:** (replace dates with real dates dd.mm.yy and correct example text)

Week 1 Literature study of relevant literature as well as open source karaoke platforms such as ‘ultrastar’. The purpose is to clarify newest methods, available data and platforms as well as formulating 3-5 project hypotheses addressing basic and advanced features.

End of week 4 **Milestone:** Hand-in of literature report, which is also used for the final report as background material and theory. Presentation of the initial work for the supervisors.

Approx 6 weeks Development and implementation of baseline methods

End of week 10 **Milestone:** Evaluation of hypotheses related to baseline methods. Present draft of thesis containing results.

Approx 6 weeks Development and implementation of advanced methods / implement you own ideas

End of week 16 **Milestone:** Evaluation of hypotheses related to own ideas.

Approx 4 weeks Analyze, discuss and understand results, conduct follow-up experiments to shed light on the “whys” found in the project so far.

End of week 20 **Milestone:** Present draft of all results found in the project and of analysis here-of.

Approx 2 weeks Finalize report approximately

End of week 22 **Milestone:** Hand-in of project report

**Specific learning objectives:**

The student can

* explain general concepts on meta-parameter selection on machine learning models;
* implement the method using C and possibly Matlab code as well as the Open MP framework;
* design experiments for the application and evaluation of the method on a range of test problems.

**General learning objectives:**

<http://sdb.dtu.dk/2018/35/708#x_Master's_thesis>

**In addition, the student**

* can identify and reflect on technical scientific issues and understand the interaction between the various components that make up an issue;
* can, on the basis of a clear academic profile, apply elements of current research at international level to develop ideas and solve problems;
* masters technical scientific methodologies, theories and tools, and has the capacity take a holistic view of and delimit a complex, open issue, see it in a broader academic and societal perspective and, on this basis, propose a variety of possible actions;
* can, via analysis and modelling, develop relevant models, systems and processes for solving technological problems;
* can communicate and mediate research-based knowledge both orally and in writing;
* is familiar with and can seek out leading international research within his/her specialist area;
* can work independently and reflect on own learning, academic development and specialization;
* masters technical problem-solving at a high level through project work, and has the capacity to work with and manage all phases of a project – including preparation of timetables, design, solution and documentation.