

COURSE DESCRIPTOR

Computer Vision by Learning

Datorseende via Inläring

7.5 ECTS credit points (7.5 högskolepoäng)

Course code: ???

Educational level: Advanced level

Course level: A1N

Field of education: Technology

Subject area: Computer Science

Main area: Media technology

Version: 1

Applies from: 2018-XX-YY

Approved: 2018-XX-YY

1. Course title and credit points

The course is titled Computer Vision by learning and awards 7.5 ECTS credits. One credit point (högskolepoäng) corresponds to one credit point in the European Credit Transfer System (ECTS).

2. Decision and approval

This course is established by department of technology and aesthetics 2018-xx-xx. The course descriptor is approved by the department and applies from 2018-xx-xx.

Dnr: XXXX

3. Objectives

In recent years, learning has become a dominant classification tool for a variety of domains. In computer vision, the tools have been used to promote object and pattern recognition, which have proven to be very successful. In this course we will study learning methods for various computer vision problems. In these methods either invariant features are detected and implemented in the learning process or simply original images/videos are used.

With this background, the course aims to provide students with insight into the fundamentals of advanced subjects in computer vision using learning methods.

4. Content

Central items of the course are:

- Overview of image segmentation and object detection
- Modeling concept vice versa learning concept
- Invariant features
- Learning using invariant features
- Deep learning for pattern recognition
- Structural Prediction
- Semantic image segmentation with deep learning
- Tracking and event recognition with deep learning

5. Aim

Knowledge and understanding

Upon completion of the course, the student:

- Can explain key concepts in learning in computer vision
- Can classify the impact and performance of different algorithms for a variety of topics in computer vision.

Generic skills

The following generic skills are trained in the course:

- Ability to formulate algorithms, tools in learning in computer vision
- Ability to plan, implement and analyze experiments
- Ability to present results and conclusions

Evaluation ability and approach

After completing the course, the student will:

- be able to analyze and assess the results of the project data
- be able to interpret the learning outcomes
- be able to account for opportunities for improving learning in given circumstances

6. General abilities

The following general abilities are trained in the course:

- Skills in research
- Group work
- Ability to work in an international context within the group
- Ability to apply theoretical concepts

7. Learning and teaching

The course is organized in seminars, self-study, assignments, and projects. The teaching is conducted in English.

8. Assessment and grading

Examination of the course

Code	Module	Credit	Grade
????	Assignment	3,0 hp	G-U
????	Project	4,5 hp	G-U

The course is assessed with the grades G Approved, UX Insufficient where complementary is required, and U Fail. Approved assignments and approved oral project reports are required to pass the grade G (passed) on the course.

9. Course evaluation

The course coordinator is responsible for ensuring that students' views on the course are systematically and regularly collected and that the results of evaluations in various forms influence the design and development of the course.

10. Prerequisites

Basic eligibility, as well as initiated doctoral studies.

11. Educational area and main area

The course is part of the field of Technology and is part of the main field of Media Technology.

12. Course literature and other teaching material

Material from the department.