

Biometric Recognition 7.5 credits

Biometrisk identifiering 7.5 hp

First cycle

Progression: 1-30

Main field: Digital Forensics, First cycle, has only upper-secondary level entry requirements (GIN)

Syllabus is adopted by the Research and Education Board (2018-02-19) and is valid for students admitted for the autumn semester 2019.

Placement in the Academic System

The course is included in IT-Forensics and Information Security 180 credits. The course is also offered as a freestanding course.

Prerequisites and Conditions of Admission

General entry requirements for university studies.

Course Objectives

The course deals with the construction and use of automated decision-making systems with focus on biometric personal recognition. Biometric person recognition means that a biometric signal is used to determine a person's identity. Some examples of biometric signals are face, iris, fingerprints, hand-geometry and voice.

Following successful completion of the course the student should:

Knowledge and understanding

- use concepts from pattern recognition such as: vectors, exercise data, test data, and classification to describe how a biometric person recognition system works and is built up.
- explain the meaning of the terms registration, identification and verification of a biometric system.
- describe methods of recognition for at least two biometric signals

Skills and ability

- use signal processing algorithms on digital signals and images with MATLAB.
- present the malfunction of a personal recognition system in a manner recognised by the area.
- based on error performance curves, identify different operating points depending on the requirement that the application places on a biometric system such as: high security or high availability.

Judgement and Approach

- determine the strengths and weaknesses of biometric and traditional password-based identification systems.

Primary Contents

Matlab, algorithms for signal and image processing, concepts within the design recognition area, concepts in biometric person identification, error and error performance for biometric systems, automatic person recognition system.

Teaching Formats

Teaching is provided as lectures and laboratory exercises. Laboratory exercises in the form of computer exercises are mandatory.

Teaching is in English.

Examination

The overall grades of Fail, 3, 4 or 5 will be awarded for the course.

The examination consists of laboratory exercises and a written examination.

Name of the test		Grading
Written Examination	3,8 credits	U/3/4/5
Laboratory Exercise report: Hand Recognition	2,5 credits	U/G
Laboratory Exercise report: Fingerprint Recognition	1,2 credits	U/G

If a disabled student has been granted learning support through a decision by Halmstad University, the examiner may decide on an adapted or alternative form of assessment for this student.

Course Evaluation

Course evaluation is part of the course. This evaluation should offer guidance in the future development and planning of the course. Course evaluations should be documented and made available to the students.

Course Literature

Bolle, R.M., Connell, J., Pankanti, S., Ratha, N.K., Senior, A.W., " Guide to Biometrics ", Springer, 2004, ISBN 0-387-40089-3

A. K. Jain, A. Ross and S. Prabhakar, "An introduction to biometric recognition," IEEE Transactions on Circuits and Systems for Video Technology, vol. 14, no. 1, pp. 4-20, Jan. 2004.
doi: 10.1109/TCSVT.2003.818349

P. J. Phillips, A. Martin, C. I. Wilson, M. Przybocki, " An Introduction to Evaluating Biometric Systems ", Computer, vol. 33, no. 2, pp. 56-63, Feb. 2000