

Martin Hjelm

EMPLOYMENT

Teaching (KTH)

2010, Exercise teacher in Calculus for Material Design Engineering and Civil Engineering.

2005, Exercise teacher in Calculus for Computer Science.

2005, Exercise assistant in Calculus in One Variable and Linear Algebra for Open.

2004, Exercise assistant in Calculus in One Variable and Linear Algebra for Industrial Engineering and Management.

Creative Space

2006-2009 *Founder/Lead programmer* During a one-year sabbatical that turned into three years I joined start-up Creative Space who's business idea was to be an incubator for start-ups as well as desk renter for all sorts of creative people from scientists, artists to copy writers and graphic designers. I functioned as a lead programmer / technical consultant doing everything from helping out with business plan's technical aspects as well as programming and designing community sites etc.

Tenko Tech

2003-2005 *Founder* I founded Tenko Tech together with

two fellow students to be a platform and an outlet for business ideas. The main idea was to utilize our knowledge in mathematics and programming to create new and useful products at a competitive price with a strong focus on design and usability.

O2 Interactive Media

1999-2002 *Web designer* Under my employment I functioned both as technical and graphical adviser working more as bridge between the different sections of our company. I was one of the initiators and wrote parts of a quality assurance program aimed to standardize our work. Main customers were Microsoft.

EDUCATION

My average grade at my main university KTH is 4.19 (where 3 is the lowest and 5 is the highest).

SUMMARY OF GRADUATE COURSES AT TECHNISCHE UNIVERSITÄT BERLIN

Independent Project Course in Probabilistic Modeling in Machine Learning

An independent project on Gaussian Processes - Basically implementation of a paper on using Gaussian processes for finding max/min of a function when evaluation of the function is expensive.

Applied Machine Learning

Implementation and evaluations of the following algorithms: PCA, LLE, Isomap, EM for Gaussian Mixtures, K-means and SVM.

Probabilistic Models In Machine Learning

Basically followed Chris Bishop's Pattern Recognition and Machine Learning i.e. Gaussian processes, Mixture models, EM-algorithm, Monte-Carlo sampling, Variational methods and Hidden Markov Models.

Models of Neural Systems (at BCCN Berlin)

Basic modeling of neural systems basically divided into Theoretical lecture, Computer modeling of neural systems in iPython and lectures on experimental work.

Introductory Machine Learning

Basics of Machine Learning.

SUMMARY OF GRADUATE COURSES AT THE ROYAL INSTITUTE OF TECHNOLOGY - KTH

Master Thesis – A Generative Model of Indoor Scenes

I did my Master Thesis at the Toyota Institute of Technology in Chicago under Raquel Urtasun. I worked on a generative model for understanding

indoor scenes, meaning trying to label pixels as walls, floor and ceiling in monocular images. Mostly I dealt with Bayesian modeling, Monte-Carlo methods, EM etc. At the moment the thesis is still in writing, so far we are getting good results beating state-of-the-art by

by some percent using a much simpler model, and if all goes according to plan a paper will be submitted.

F2945 Time Series Analysis

General introduction to time series. Stationary and non-stationary models, e.g. ARMA- and ARIMA-models. Prediction of time series. Spectral theory. Estimation of parameters and of the spectra. Filtering.
<http://www.kth.se/student/kurser/kurs/SF294>

SF2940 Probability Theory

Measurability and sigma algebras. Characteristic functions and generating functions. Convergence of probability distributions, the Central Limit Theorem. Convergence of random variables. The Law of Large Numbers. Multivariate Normal distributions. Conditional distributions. Stochastic processes: Random walks, Branching processes, Poisson processes. Wiener processes.
http://www.kth.se/student/kurser/kurs/SF2940?l=en_UK

DN2221 Applied Numerical Methods, part 1

http://www.kth.se/student/kurser/kurs/DN2221?l=en_UK

DN2222 Applied Numerical Methods, part 2

http://www.kth.se/student/kurser/kurs/DN2222?l=en_UK

DN2266 Mathematical Models, Analysis and Simulation Part 1

Linear algebra, equilibrium and minimization problems. Applications on networks. Duality and calculus of variation, essential and natural boundary conditions.

Systems of ordinary differential equations, linear and nonlinear. Phase plane, stability, bifurcation. Numerical methods for the solution of nonlinear systems and differential equations. Applications on mechanical and ecological systems. Solution of systems of linear equations. Symmetrical positive definite matrices. Minimization problems. Eigenvalues and dynamical systems.

Assignments: One assignment every second week, from paper and pencil work to parameter studies of dynamical models in ecology and mechanics.
http://www.kth.se/student/kurser/kurs/DD2266?l=en_UK

DD2426 Robotics and Autonomous Systems

During the course a small, mobile, autonomous robot for performing certain tasks is built. This work is carried out in groups as a project. At the end of the course there is a contest between
The theoretical part of the course deals with fundamental concepts in robotics, kinematics, navigation and digital control. The practical part of the course adds hands on experience with sensors, actuators, programming of micro-controllers and building of robots.
http://www.kth.se/student/kurser/kurs/DN2266?l=en_UK

2D1432 Artificial Neural Networks and Other Learning Systems

2D1433 Artificial Neural Networks, Advanced Course

2D1385 Software Engineering

Advanced OO Java programming.

Programming languages:

Fluent: Matlab, iPython, Java, PHP, JavaScript

Intermediate: C++

Languages:

Fluent: English, Swedish, German

Limited: Spanish, Portuguese

Personal Interests

Info-graphics. Making music, I play the saxophone, guitar and some piano. Photography. Cultivating the perfect American pancake. Architecture. Poetry. Long distance running, push-ups and the occasional Tai-Chi.