


Hafsteinn Einarsson

Born 14th of June 1988,

CS Ph.D. candidate at **ETHZ**.

Nationality: Icelandic, 

Icelandic, 5/5

English, 4.5/5

German, 1/5

Danish, 1/5

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EDUCATION

SEPT. 2011 - OCT. 2012 **M.Sc.** degree in **Computer Science** from ETH. Grade: 5.61/6.00.

MAY 2011 **B.Sc.** degree in **Mathematics** with focus on **Computer Science** Grade: 9.56/10.00.
from UNIVERSITY OF ICELAND.

MAY 2008 Gymnasium diploma, **Eðlisfræðibraut I (Physics I)**. GRADE: 8.82/10.00.
from MENNTASKÓLINN Í REYKJAVÍK.

WORK EXPERIENCE

OCTOBER 2012 - NOW

Ph.D. studies

I am a Ph.D. candidate in **computer science** (neuroinformatics) at **ETHZ** under the supervision of Prof. Dr. **Angelika Steger**. The work of my thesis includes various topics from mathematics and computer science such as **mathematical modeling** of neurons at different scales using tools from probability theory, discrete math, differential equations analysis and principles from distributed computing. My work additionally involves a lot of coding for simulations using **C++**, **Python**, **Mathematica**, **Matlab** and standard tools for neuron simulations such as NEST-simulator and Aurnyn. Alongside my research I have been a teaching assistant for the course *Randomized algorithms and the probabilistic method* three times, for the course *Graphs and algorithms* and I have supervised students in our seminars. My group's website can be found here as.inf.ethz.ch.

APRIL-AUGUST 2011

Charging post location optimization

I was awarded a research grant from the Icelandic innovation fund to survey and study location based need for electric vehicle charging post locations. For the project I used **HTML**, **javascript**, **Google Maps API**, **statistical modeling** and **Google Fusion Tables**.

JUNE-AUGUST 2010

SURF at Caltech – Community Seismic Network

I received a **Summer Undergraduate Research Fellowship** (SURF) at the *California Institute of Technology*. I worked on a project called the community seismic network (CSN) – a crowdsourced early earthquake warning system. <http://csn.caltech.edu>.

MAY-SEPTEMBER 2009

Research Assistant – *Closed Form Expressions of Discrete Linear System Responses with Applications*

Sven P. Sigurdsson and *Anna Soffia Hauksdóttir* hired me as a research assistant. We were solving numerically discrete closed loop control systems and my task was to verify their theory. I programmed their model in **Matlab** and compared it with theoretical results.

SEPTEMBER-DECEMBER 2009 & JANUARY-MAY 2010

During my bachelor studies I was a TA in the courses *Discrete Math for Computer Science*, *Linear Algebra IB*, *Informatics I (Java)* and *Informatics II (C++)*.

AWARDS AND ACHIEVEMENTS

Participated in the Venture Lab at ETH and qualified for a **fast-track** position at ETH. 2012

Graduated with a B.Sc. degree in Mathematics from the University of Iceland with honors at the **top of my class**. Nominated for the most innovative project funded by the Icelandic innovation fund that year. 2011

10 week summer undergraduate **fellowship** at Caltech and received a **scholarship** from Landsbanki bank in Iceland. 2010
2008

Diploma for good exam results in physics at the gymnasium of Reykjavík.

Team member for Iceland in **IPhO** (physics) and the **Baltic Way** (mathematics). Second place in the Icelandic gymnasium (high school) mathematics competition. 2007

IT SKILLS

I'll try to rate my knowledge for each skill on a scale from 1-10 where 1 is a student after one year of studying the skill and 10 is the creator of the programming language, tool or skill.

C++	3-5	Mac OS X	5	Haskell	0.5-1
Python	2-4	Shell scripting	1-3	Lisp	0.5-1
Mathematica	2-3	Linux, Windows	2-3	Scala	0.5
Nodejs & Javascript	2-3	MS Office	3-5	Java	1-1.5
Matlab	2-3	L^AT_EX	5		

OTHER DUTIES

DECEMBER 2015-NOW

VMI, **President**

I'm currently the president of VMI (the association of scientific staff of computer science at ETH) after serving as the vice president the year before. The goal of VMI is to represent the scientific staff within relevant decision-making bodies of the department, provide support to members and create networking opportunities. This experience has helped me improve my communication and management skills.

SEPTEMBER 2012- MAY 2013

MoEB, **Coach**

During the winter of 2012-2013 I participated as a coach for the MoEB (master ohne ETH bachelor's) committee. I introduced new students to the department, helped them with planning their studies and organised social events for them.

SEPTEMBER 2010- AUGUST 2011

Verpill, **Head of Editorial Board**

Winter 2010-2012 I was editing Verpill, the journal of math and physics students at the University of Iceland. The journal is published every two years and was then published for the 8th time, the journal should be available online verpill.hi.is.

SEPTEMBER 2009- AUGUST 2010

Stigull, Board of Math and Physics students, **secretary**

After my first year at the University of Iceland I was elected to be the secretary for Stigull, the student council for math and physics students. The council organizes events and social life in the math and physics department.

PAPERS

- 2016+
F. Meier, F. Weissenberger, J. Lengler, H. Einarsson, A. Steger. A bioplausible model of sequence learning.
- 2016+
H. Einarsson, M.M. Gauy, J. Lengler, and A. Steger. A simple STDP rule for local homeostatic plasticity.
- 2016+
H. Einarsson, J. Lengler, F. Mousset, K. Panagiotou, and A. Steger. Bootstrap percolation with inhibition, submitted.
- 2016
H. Einarsson, J. Lengler, F. Mousset, K. Panagiotou, and A. Steger. Connectivity thresholds for bounded size rules, Annals of applied probability, to appear.
- 2014
H. Einarsson, J. Lengler and A. Steger. A high-capacity model for one shot association learning in the brain, Frontiers in Computational Neuroscience.

TALKS

- 30TH OCTOBER 2012
One Shot Learning – Mitagsseminar ETHZ
- 14TH MAY 2013
A short survey on bootstrap percolation – Mitagsseminar ETHZ
- 26TH NOVEMBER 2013
Controlled Explosions: Restraining Bootstrap Percolation – Mitagsseminar ETHZ
- 27TH NOVEMBER 2014
Towards more efficient one shot learning using inhibition in cell assemblies – Mitagsseminar ETHZ
- 5TH MAY 2015
A new local homeostasis mechanism for neurons – Mitagsseminar ETHZ
- 21ST AUGUST 2015
Bootstrap Percolation with Inhibition – ICE-TCS

LEISURE TIME ACTIVITIES

In my free time I like to do weight lifting, running, hiking and I love playing boardgames.