Hafsteinn Einarsson

Born 14th of June 1988
CS Ph.D. candidate at **ETHZ**.
Nationality: Icelandic,

Icelandic, 5/5
English, 4.5/5
German, 2/5
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** from University of Iceland.	Grade: 9.56/10.00.
May 2008	Gymnasium diploma, **Eðlisfræðibraut I (Physics I)**. from Menntaskólinn í Reykjavík.	Grade: 8.82/10.00.

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 using tools from probability theory, discrete math, differential equations analysis and principles from distributed computing, My work additionally involves coding simulations using **C++**, **Python**, **Mathematica**, **Matlab** and standard tools for neuron simulations such as the simulators NEST and Auryn. I have been a teaching assistant for the course *Randomized algorithms and the probabilistic method* four times, for the course *Graphs and algorithms* once, and I have supervised students in our seminars, as well as in short research projects. My group's website can be found here as.inf.ethz.ch.

April-August 2011

Summer research project

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**, **clustering analysis** 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 crowd-sourced early earthquake warning system. http://csn.caltech.edu.

May-September 2009

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

I worked as a research assistant for *Sven Þ. Sigurðsson* and *Anna Soffía Hauksdóttir*. They 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 against 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

2012

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

2011

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.

2010

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

2008

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

2007

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

IT Skills

I'll try to rate my knowledge on each category below on a scale from 1-10. I assume that 1 corresponds to a student after one year of training and 10 corresponds to the creator of that particular category.

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	**LaTeX**	5		

Other duties

December 2013-December 2016

VMI, **board-member**, **Vice President** (1 year) and **President** (1 year)

I was on the board for the association of scientific staff of computer science at ETH for three years. I organized and hosted various big and small events for our members to encourage a more connected community. During my term I made a new website for the association and redesigned the logo (www.vmi.ethz.ch).

September 2012- May 2013

MoEB, **Coach**

During the winter of 2012-2013 I was a coach in the committee of students without a Bachelor's degree from ETHZ. I helped students integrate, and organized social events for them.

September 2010- August 2011

Verpill, **Head of Editorial Board**

Winter 2010-2011 I was an editor for Verpill, the journal of math and physics students at the University of Iceland. The journal is available online at verpill.hi.is.

September 2009- August 2010

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

I was on the board of the student association (Stigull) for math and physics students as a secretary. For the board, I participated in student politics and event organization.

Papers

2016+

F. Meier, F. Weissenberger, J. Lengler, H. Einarsson, A. Steger. A biologically plausible model of sequence learning, submitted.

2016+

H. Einarsson, M.M. Gauy, J. Lengler, and A. Steger. Fast local homeostatic plasticity, submitted.

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.

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 – ICETCS

Leisure time activities

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