Helga Gudmundsdottir

Computer Science Ph.D. Student

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Education

2015 (ongoing) **University of Washington**, *Ph.D. Computer Science.*
Ph.D. student working with professors Magdalena Balazinska, Dan R. K. Ports and Dan Suciu.
Research focus: Performance modeling and analysis of storage systems. Emphasis on developing tools and techniques that help guide in-depth performance analysis and promote better understanding of the performance characteristics of systems.

2013 – 2014 **Reykjavik University**, *M.Sc. Computer Science.*
92/120 ECTS completed with a GPA of 9.5/10.
Primary research project: Caching in large-scale distributed systems. Advisor: Prof. Ymir Vigfusson.

2010 – 2013 **Reykjavik University**, *B.Sc. Computer Science.*
Valedictorian, commencement speaker. Graduated with highest honors. GPA of 9.77/10.

Professional Experience

2014 – 2015 **Research Assistant**, *Emory University*, Atlanta, GA.
Continuing work in collaboration with researchers from Cornell and Facebook (described below).
Additional research projects related to data analysis and computer security.

2014 **Research Intern**, *Cornell University*, Ithaca, NY.
March – June Wrote a simulator in Python that emulates the caching stack of Facebook's `memcached` system and graph store. Analyzed production traces obtained from Facebook, evaluated load-imbalance across servers under different strategies and developed a scheme to facilitate proactive caching strategies. Hosted by Dr. Robbert van Renesse. Presenting author of workshop paper (listed below).

2012 – 2014 **Research Assistant**, *Reykjavik University*, Iceland.
Modeling wireless interference for distributed scheduling algorithms. Designed, implemented and automated extensive hardware experiments on 8-bit micro controller wireless motes.
Lead author of a conference paper and co-author of workshop paper (listed below).

2013 **Research Intern**, *Fraunhofer Center for Experimental Software Engineering*, College Park, MD.
Jan – June Competitive six month internship. Supervisors: Dr. Mikael Lindvall and Dr. Charles Song.
Lead developer and researcher of a testing framework (implemented in Java) that uses computer vision to test GUI applications used by NASA to monitor and control satellites.

Peer-Reviewed Publications

1. **Characterizing Load Imbalance in Real-World Networked Caches**
   Qi Huang, **Helga Gudmundsdottir**, Ymir Vigfusson, Daniel Freedman, Ken Birman, Robbert van Renesse.
   In *13th ACM Workshop on Hot Topics in Networks* (HotNets '14), Los Angeles, CA. October, 2014. [pdf]

2. **Extending Wireless Algorithm Design to Arbitrary Environments via Metricity**
   Helga Gudmundsdottir, Eyjólfur I. Ásgeirsson, Marijke H.L. Bodlaender, Joseph T. Foley, Magnús M. Halldórsson, Ymir Vigfusson.
   In *17th ACM International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems* (MSWiM '14), Montreal, Canada. September, 2014. [pdf]

3. **Distributed Scheduling for Data Aggregation in Wireless Networks**
   Eyjólfur I. Ásgeirsson, Magnus M. Halldorsson, Pradipta Mitra, Joseph Foley, **Helga Gudmundsdottir**, Sveinn F. Kristjansson, Sindri Magnusson, Henning Ulfarsson, Ymir Vigfusson.
   In *11th Workshop on Models and Algorithms for Planning and Scheduling Problems* (MAPSP '13), Pont à Mousson, France. June, 2013.

Awards and Honors

2016 – 2017 **Women's Fellowship**, *Microsoft Research*.

2016 – 2017 **Microsoft Endowment Fellowship**, *CSE*, University of Washington.

2015 – 2016 **Dean's Fellowship**, *College of Engineering*, University of Washington.

2014 – 2015 **Research Fellowship**, *Department of Mathematics and Computer Science*, Emory University.

Oct. 2014 **Grace Hopper Conference Travel Grant**, *Google*.

June 2014 **Google Anita Borg Memorial Scholarship**, *Google EMEA*.

January 2014 **Icelandic Chamber of Commerce**, *Viðskiptaráð Íslands*.
Awarded to the highest ranking BSc graduate in each department.

January 2014 **Icelandic Union of Computer Scientists**, *Félag Tölvunarfræðinga*.
Awarded to the highest ranking graduate in Computer Science.

2013 – 2015 **Alan Turing Scholarship**, *School of Computer Science*, Reykjavik University.
Highest honor in the Masters program. Full tuition waiver for the duration of the MSc studies.

May 2013 **Scholarship Grant**, *Icelandic United Contractors (Sameinaðir Verktakar ehf.)*.
For outstanding academic achievement.

2010 – 2013 **Dean's List**, *School of Computer Science*, Reykjavik University.
Ranked in the top 2% of my class each semester.

Selected Activities and Achievements

Fall 2013 **Co-founder and 2013–14 chair of `/sys/tur`**, *RU's Women's Chapter for CS Students*.
Initiated and organized the founding of an association for women in CS and related fields, with the goal of improving the technical skills and confidence of women starting out in tech.

Fall 2013 **First Place**, *Reykjavik University Idea Contest*.
Proposed a project aimed at using computer vision and machine learning techniques to recognize and identify food items from photographs. Supervised three students during summer 2014, funded by the Icelandic Student Innovation Fund to work on the project.

Fall 2013 **Finalist**, *NSC/RU Hacking Contest 2013*.
Completed all stages of the online capture the flag event. Invited to compete in the on-site finals as part of the 2013 Nordic Security Conference. Placed 3rd out of over 50 contestants.

Fall 2012 **IEEEXtreme 6.0**, *24-hour Programming Competition*.
My team ranked 22nd out of almost 2000 competing teams from all over the world.

Fall 2012 **Finalist**, *Reykjavik University Hacking Contest 2012*.
Completed the online Capture the Flag event which culminated in an on-stage showdown between finalists, held in one of Iceland's biggest auditorium. Placed 5th out of over 60 contestants.

Fall 2012 **Runner up**, *Reykjavik University programming contest*.

Selected Posters and Presentations

1. *Viska: Enabling Interactive Analysis of Performance Measurements*
   OSDI '16, Savannah, GA: November 2nd 2016 [poster]
2. *Characterizing Load Imbalance in Real-World Networked Caches*
   HotNets '14, Los Angeles, CA: October 27th 2014 [slides]
3. *Proactively Cooling Hot Spots in Networked Caches*
   Scholars Poster Session, Google, Zurich: July 8th 2014 [poster]
4. *Visual GUI Testing with PiGuiT*.
   ICE-TCS Seminar, Reykjavik University: September 20, 2013. [abstract] [slides]
5. *Putting Theory to the Test: Distributed Connectivity in Wireless Networks*.
   ICE-TCS Theory Day 2012, Reykjavik University: August 17, 2012. [abstract] [slides]