

Associate Professor

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OBJECTIVE

I work on making computer systems easier, faster, and safer to use in the service of science and society. I tackle challenges that elude this goal, and train and teach people who will work on even harder problems. My research focuses on data science, distributed systems, and cybersecurity, and I am particularly interested in socially motivated real-world problems that embody deep trade-offs. These include **data replication** (including distributed caching, live streaming, and multicast), **computational epidemiology**, and **scalable cybersecurity**. Previously, I worked on algorithm design, optimization, and wireless ad-hoc networks.

I often employ entrepreneurship towards my objective to generate impact at scale. I am the co-founder of **KeyStrike**, a cybersecurity startup; **Syndis**, a penetration testing company focused on bespoke attack services (acquired in 2021), and **Adversary**, an online security training company (acquired in 2020).

EDUCATION

Cornell University, Ph.D. in Computer Science. February 2010

Advisor: Prof. Ken Birman. Thesis: *Affinity in Distributed Systems*.
Minor: Music composition.

Cornell University, M.Sc. in Computer Science. May 2008

Advisor: Prof. Ken Birman. Topic: *Distributed Slicing*.

University of Iceland, B.Sc. in Mathematics (with Distinction). May 2005

Final project: *Greedy Approximation Algorithms for Sum Coloring of Interval Graphs*.
Advisor: Prof. Magnus M. Halldorsson.
Minor: Computer Science.

RESEARCH AND WORK EXPERIENCE

KeyStrike, Atlanta, GA. CTO, VP Eng. December 2022–present

Co-founder of a startup specializing in preventing lateral movement of attackers by ensuring end-to-end integrity between an employee computer and company systems. I serve as CTO and VP of Engineering of the company.

Emory University, Atlanta, GA. Associate Professor (with tenure) June 2021–present

Emory University, Atlanta, GA. Assistant Professor. September 2014–2021

Co-PI of the SimBioSys (simulation/biology/systems) lab in the Department of Computer Science, where I supervise undergraduate and graduate students on research into distributed systems, data science, and security.

Syndis, Reykjavik, Iceland. Co-founder. March 2013–April 2021

Co-founder of a company specializing in security innovation and bespoke attack solutions for leading companies with demanding security needs. Acquired by Origo hf. in April 2021.

Adversary, Reykjavik, Iceland. Co-founder. December 2018–April 2020

Co-founder of a company focused on improving cybersecurity training through an online platform: adversary.io. Acquired by Secure Code Warrior Inc. in April 2020.

Reykjavik University, Reykjavik, Iceland. *Assistant Professor.*

June 2011–August 2017

As Assistant Professor from 2011 to 2014, I led the RU Systems Lab and co-founded the RU Center of Research in Engineering Software Systems (CRESS). I taught courses Operating Systems and Networking, Computer Security and Structure of Information Networks in the School of Computer Science, and supervised dozens of B.Sc, M.Sc and Ph.D. students on distributed systems research. In an adjunct capacity from 2014–2017, I advised students and taught a 3-week version of the Computer Security course each summer semester.

Technion Israel Institute of Technology, Haifa, Israel. *Visiting Professor.*

November–December 2012

Invited by the Technion Computer Engineering Center to collaborate on live streaming system research. Host: Prof. Daniel M. Freedman.

IBM Research, Haifa, Israel. *Post-doctoral Scientist.*

September 2009–June 2011

Systems research in the Distributed Middleware group. Researched multi-tenant caching services and devised algorithms to improve the performance and feature set for the caching component of IBM's eXtremeScale network caching appliance. Improved the scalability of multicast protocols for data centers (Dr. Multicast) and over wide-area networks (Magnet and GO). Researched event-based systems to defend the financial infrastructure against large-scale, coordinated attacks (CoMiFin). Supervisor: Dr. Eliezer Dekel.

IBM Research, Haifa, Israel. *Visiting Scientist.*

January 2009

Integrated Dr. Multicast with the IBM WebSphere VE communications layer prototype. Devised a novel optimization algorithm based on a model from a real-world trace of the system. Supervisor: Dr. Gregory Chockler.

Yahoo! Research, Santa Clara, CA. *Research Intern.*

Summer 2008

Developed, analyzed and implemented a novel approach for performing range queries in a scalable fashion on a massive distributed data storage system (PNUTS). The internship resulted in production software that is still in use, a publication (VLDB 2009) and two patents. Supervisor: Dr. Brian Cooper.

Iceland Genomics Corporation, Reykjavik, Iceland. *Research Intern.*

Summer 2004

Devised and implemented a very fast search algorithm and web engine for identifying all binding sites for short primer pairs in the human genome based on approximate string matching. Supervisor: Prof. Magnus M. Halldorsson.

Tal (ISP), Reykjavik, Iceland. *System Administrator.*

1999-2003

Engineered and maintained a low-level distributed e-mail service for about 30,000 users (100,000 e-mail accounts). Designed and implemented various systems and interfaces to facilitate system administration.

Qualys Technologies, Paris, France. *Software Security Specialist.*

Summer 2001

Discovered and mitigated security vulnerabilities in commonly used software. Performed security software research and development.

AWARDS AND HONORS

Best Paper Award (Health Day Track), at *KDD 2022*.

August 2022

For the paper “*Dynamic Network Anomaly Modeling of Cell-Phone Call Detail Records for Infectious Disease Surveillance.*”.

Emory University’s Innovation of 2021.

April 2022

For the invention “*KeyStrike: Securing Communications from an Untrusted Computer*”. The invention was licensed to KeyStrike Inc. in January 2023.

Distinguished Artifact Award, at *OSDI 2020*.

November 2020

For the paper “*Serving DNNs like Clockwork: Performance Predictability from the Bottom Up.*”.

Best Paper Honorable Mention, at *ICWSM 2020*.

June 2020

For the paper “*Aggressive, Repetitive, Intentional, Visible, and Imbalanced: Refining Representations for Cyberbullying Classification*”.

Best Student Paper award, at *ACM SIGMETRICS 2020*.

June 2020

Awarded for the paper “*Optimal Data Placement for Heterogeneous Cache, Memory, and Storage Systems*”. Student authors: Lei Zhang and Reza Karimi.

Awarded **NVIDIA Corporation GPU Grant**.

April 2017

Awarded for a project on detecting epidemics through cell phone metadata.

Best Student Paper award, at *ACM International Systems and Storage Conference (SYSTOR)*, Israel. June 2016

Awarded for the paper “*Enabling Space Elasticity in Storage Systems*”. Student authors: Helgi Sigurbjarnarson, Petur O. Ragnarsson and Jason Yang.

Awarded **Google Cloud Credits** grant for furthering cybersecurity education (\$10,000). November 2014–2015

Teacher of the Year award, by the Reykjavik University CS Student Union.

March 2012

Best Student Paper award, at *IEEE Sensors Applications Symposium (SAS)*, Brescia, Italy.

February 2012

Awarded for the paper “*Bootstrapping Trust in Networked Measurement Systems with Secure Sensors.*”. Student author: Kristjan V. Jonsson.

Nominated for the **ACM Doctoral Dissertation Award**.

October 2010

Nominated by Cornell’s Department of Computer Science for my Ph.D. thesis: “*Affinity in Distributed Systems.*”.

Yahoo! Key Technical Challenges Research Grant.

February 2008

Award of \$5,000 toward research activities as well as conference travel.

Fulbright Scholarship from the Icelandic Fulbright Commission.

2005–2009

GRANTS AND CONTRACTS

Emory MP3 Seed Grant Initiative, co-PI (\$250,000). 2020–2021

Title: “Integration of Human Contact and Mobility Data with Infection History for Models of Infectious Disease Transmission”.

PIs: Dr. Benjamin Lopman, Dr. Ymir Vigfusson. Dr. Jan Vinje
(**Awarded**).

Contract from the **Centers for Disease Control** (CDC), PI (\$116,930). 2020–2021

Title: “Molecular Barcoding for Characterizing Multiple Infections of Malaria”.

PI: Dr. Ymir Vigfusson.
(**Awarded**).

Contract from the **Centers for Disease Control** (CDC), PI (\$37,500). 2019

Title: “Disambiguation of Amplicons from Mixed Infections”.

PI: Dr. Ymir Vigfusson.
(**Awarded**).

NSF CAREER Award, PI (\$552,532). 2016–2020

Proposal title: “Rethinking the Cache Abstraction”.

PI: Dr. Ymir Vigfusson.

Includes \$15,993 REU supplement for two undergraduate students.

(**Awarded**).

Contract from the **Centers for Disease Control** (CDC), co-PI (\$382,484). 2017–2018

Proposal title: “Computations methods for culture-independent disambiguation of wgMLST types in biological samples with multiple related bacterial strains”.

PIs: Dr. Lars Ruthotto, Dr. Rebecca Mitchell, Dr. Ymir Vigfusson.
(**Awarded**).

Contract from **Center for Disease Control** (CDC), PI (\$69,998). 2016

Contract title: “Developing Clustering Algorithms for Measuring Malaria Multiplicity of Infection”.

PI: Dr. Ymir Vigfusson.
(**Awarded**).

Grant from Emory’s **University Research Committee**, PI (\$40,000). May 2015–2016

Proposal title: “Detecting Outbreaks with Cell Phone Data”.

PIs: Drs. Ymir Vigfusson and Gari Clifford.
(**Awarded**).

Research Project Grant from the Iceland Research Council, PI (\$198,000). January 2015–2018

Proposal title: “Detecting Epidemics with Mobile Phone Data”.

PI: Dr. Ymir Vigfusson.
(**Awarded**).

Grant of Excellence from the Iceland Research Council, co-PI (\$330,000). January 2012–2016

Proposal title: “Designing Wireless Ad-Hoc Networks”.

PI: Dr. Magnus M. Halldorsson (Reykjavik University).

(**Awarded**).

TEACHING EXPERIENCE

Emory University, Atlanta, GA. *Associate Professor.*

2014–present

The Structure of Information Networks (CS485, Spring 2019, Fall 2020, 15–20 students). Course developed by me on the fundamentals and applications of network and graph theory applied to large-scale networks.

The Structure of Information Networks (graduate) (CS584, Spring 2015/2019, Fall 2020, 4–10 students). Graduate course piggybacked on CS485 the fundamentals of network science.

Computer Science II (CS171, Spring 2015/2016/2017, Fall 2020, 64/35/40/30 students). An introductory course on data structures and algorithms in Java. Redesigned the course to focus on automatically graded homework projects.

Computer Security (CS485/CS453, Fall 2014–2019, 12–40 students). A full semester course developed by me on the practical aspects of computer security, including advanced control-flow bypass and other attack vectors, and means to mitigate attacks. The course uses hands-on projects to develop practical cybersecurity skills in the students.

Computer Security (graduate) (CS584, Fall 2016–2019, 4–10 students). A full semester course piggybacked with CS453, providing extensive hands-on experience with binary exploitation and further covering recent academic papers in computer security.

Reykjavik University, Reykjavik, Iceland. *Assistant Professor.*

2011–2016

Offensive Computer Security (T-417-TOOR, Spring 2012–2016, 6 ECTS, 20–30 students). A novel 3-week intensive course about practical aspects of computer security, including advanced buffer overflows and other attack vectors, and means to mitigate attacks. Teaching evaluation: 4.7/5 (2012).

Operating Systems and Networking (T-STNE-408/T-STY1-213, Spring 2012/2013/2014, 6 ECTS, 100–200 students). A course designed by me based on CMU’s 15213 course, covering a practical approach to operating systems and UNIX using the textbook *Computer Systems: A Programmer’s Perspective* by Bryant and O’Hallaron (2010). Teaching evaluation: 4.6/5 (2012)

Structure of Information Networks (T-SINE-214, Summer 2011; Spring 2014, 6 ECTS, 10–20 students). Designed from scratch based on the textbook *Networks, Crowds and Markets* by Easley and Kleinberg (2010). Teaching evaluation: 4.4/5 (2011).

Cornell University, Ithaca, New York. *Instructor.*

2008

Advanced UNIX (CS214, Spring 2008, 20 students). Designed the curriculum and homeworks from scratch. Taught Python, common UNIX utilities, shell scripts and Perl. Received favorable course evaluation from 95% (18/20) of the students.

Cornell University, Ithaca, New York. *Teaching Assistant.*

2005–2007

Discrete Mathematics (CS280, Fall 2005, Prof. Jon Kleinberg),
Analysis of Algorithms (CS482, Spring 2006, Prof. Paul Chew; Spring 2007, Dr. Tom Wexler),
Graduate Analysis of Algorithms (CS681, Fall 2006, Prof. Éva Tardos),
Data Structures and Functional Programming (CS312, Fall 2007, Prof. Radu Rugina).
 Received a Departmental TA-Award for Discrete Mathematics.

University of Iceland, Reykjavik, Iceland. *Teaching Assistant.*

2003–2004

Discrete Mathematics (08.71.23, Fall 2003 and Fall 2004, Prof. Hjalmtýr Hafsteinsson),
Data Structures and Algorithms (08.71.14, Spring 2004, Prof. Hjalmtýr Hafsteinsson).

STUDENT MENTORSHIP

POST-GRADUATE LEVEL SUPERVISION

3. **Reykjavik University.** *Koosha Paridel* 2013–2014
Post-doctoral supervision.
2. **Emory University.** *Rebecca M. Mitchell* 2015–2016
Post-doctoral supervision.
1. **Emory University.** *Lauri Mustonen* 2016–2017
Post-doctoral researcher, co-supervised with Prof. Lars Ruthotto.

GRADUATE LEVEL SUPERVISION

13. **Emory University.** *Vishwanath Seshagiri* 2019–present
Ph.D. rotation project supervision.
12. **Emory University.** *Gary Vestal* 2019–present
Ph.D. committee chair.
11. **Emory University.** *Yazhuo Zhang* 2019–present
Ph.D. committee chair.
10. **Emory University.** *Pranav Bhandari* 2018–present
Ph.D. committee member.
9. **Emory University.** *Lei Zhang* 2017–present
Ph.D. committee chair. Three publications, including Best Student Paper award at SIGMETRICS 2020.
8. **Emory University.** *Reza Karimi* 2016–present
Ph.D. committee chair. Five publications, including Best Student Paper award at SIGMETRICS 2020 and Distinguished Artifact Award at OSDI 2020.
7. **Emory University.** *Tommy Flynn* 2016–present
Ph.D. student at School of Nursing, committee member. Dissertation title: “*Racial Equity in the Emergency Department Social Network.*”
6. **Georgia Institute of Technology.** *Hobin Yoon* 2016–2019
Ph.D. committee co-chair. Four publications. Dissertation title: “*Cost-configurable cloud storage system designs.*”
5. **Georgia Institute of Technology.** *Xin Chen* 2016–2017
Ph.D. rotation project. One publication.
4. **Emory University.** *Derek Onken* 2016–2017
Ph.D. rotation project supervision. One paper pending publication.
3. **Emory University.** *Xiaofeng Xu* 2016
Ph.D. committee member. Dissertation title: “*Indexing Moving Objects for Predictive Spatio-Temporal Queries.*”

2. **Technion.** *Alex Libov* 2012–2016
Ph.D. committee member (unofficial). Dissertation title: “Efficient Content Delivery in P2P Networks.” Two publications.
1. **Reykjavik University/KTH.** *Kristjan V. Jónsson* 2010–2013
Ph.D. committee chair. Dissertation title: “The Security Properties of In-Network Aggregation.” Five publications, including Best Student Paper Award at SAS 2012.

MASTER’S LEVEL SUPERVISION

12. **Emory University.** *Juncheng Yang* 2015–2018
Research supervisor. Four papers and three posters published, including Best Student Paper Award at SYSTOR 2016. Enrolled as a CS Ph.D. student at CMU.
11. **Emory/Reykjavik University.** *James Robb* 2018–2020
Research supervisor, M.Sc. committee member. Thesis title: “Temporal Isolation of Latency-Sensitive Tasks in Real-Time Nested Locking.”
10. **Reykjavik/Emory University.** *Thorgeir Karlsson* 2017–2018
M.Sc. committee Supervisor. Thesis title: “Deep Learning Approach for Behavioral Analysis Through Cellphone Meta-Data.” One paper pending publication.
9. **Emory University.** *Ilya Shats* 2016–2017
Thesis committee member. Thesis title: “Incorporating Social Relationships from Call Detail Records into Infectious Disease Spread Simulators”.
8. **Emory University.** *Nishant Kishore* 2015–2016
MPH. committee member via Department of Epidemiology. Thesis title: “Flying, Phones and Flu: An evaluation of Keflavik International Airport and its role in the introduction of pandemic H1N1 into Iceland in 2009 using anonymized call records”. Finalist for Charles C. Shepard Award for Best Thesis. Two publications, one more pending. Enrolled in Epidemiology Ph.D. program at Harvard University.
7. **Reykjavik/Emory University.** *Petur O. Ragnarsson* 2013–2015
M.Sc. Committee chair. Thesis title: “Enabling Space Elasticity in Storage Systems.” Two publications, including a Best Student Paper award at ACM SYSTOR 2016.
6. **Reykjavik University.** *Trausti Sæmundsson* 2012–2014
M.Sc. Committee chair. Thesis title: “Dynamic Performance Profiling of Memory Caches.” Three publications.
5. **Reykjavik University.** *Paolo Rovelli* 2012–2014
M.Sc. Committee chair. Thesis title: “Developing a Next-Generation Mobile Security Solution for Android.” One publication.
4. **Technion.** *Eyal Enav* 2012–2013
M.Sc. Committee co-chair. Thesis title: “Video distribution in a Hybrid Mesh-Tree Topology P2P network.”
3. **Reykjavik University.** *Hördur I. Björnsson* 2012–2013
M.Sc. Committee member. Thesis title: “Experiemtnal Analysis of Throughput Maximization for Combinatorial Spectrum Auctions.”
2. **Reykjavik University.** *Gunnar Cortes & Ástvaldur Sigurdsson* 2011–2012
M.Sc. Committee chair. Thesis title: “Detecting correlation between friendship and traveling using mobile phone data.”

1. **Technion.** *Dmitry Basin* 2010–2011
M.Sc. Committee member (unofficial). Thesis title: “Sources of Instability in Data Center Multicast.” Two publications.

UNDERGRADUATE HONORS THESIS SUPERVISION

11. **Emory University.** *Peyton Robertson* 2022–2023
Honors thesis title: “Prioritizing vulnerability-prone code patterns to improve fuzzing”.
10. **Emory University.** *Zach Zaiman* 2022–2023
Honors thesis title: “AudioStrike: Acoustic identification of keystrokes to enhance end-to-end session integrity”.
9. **Emory University.** *Alexandra Li* 2022–2023
Honors thesis title: “Mitigating SSL hijacking through face generation”.
8. **Emory University.** *Caleb Ziems* 2019–2020
Honors thesis title: “Towards More Robust Methods of Cyberbullying Detection” (highest honors). One publication, receiving Best Paper Honorable Mention at ICWSM 2020. Recipient of Emory Academic Excellence Award. Enrolled in CS Ph.D. program at Georgia Institute of Technology.
7. **Reykjavik University.** *Sandra Sigridardóttir Bender & Júlía Oddsdóttir* 2018
Honors project title: “Beefing up the Buffer Cache.”
6. **Emory University.** *Safiyah Bharwani* 2017–2018
Honors thesis title: “Deriving a Metric to Compare Solutions of Malarial Strain Identification Problems and Performing Network Analysis of Disease Outbreaks Using Analytical and Machine Learning Methods” (highest honors).
5. **Reykjavik University.** *Heidar K. Ragnarsson & Hlynur Gudmundsson & Tinna Sigurdardottir* 2017
Committee member. Honors project title: “Heimdallur: Vulnerability detection through Internet Scanning”.
4. **Reykjavik University/Emory University.** *James E. Sigurdarson* 2016–2017
Honors thesis title: “Devising Practical Algorithms for Cache Placement Using Real-World Data.”
3. **Emory University.** *Congzheng Song* 2015–2016
Honors thesis title: “Using Deep Recurrent Neural Networks to Estimating Influenza Prevalence from Mobile Phone Records” (highest honors). [Trevor Evans Award winner](#). Publication pending. Enrolled in CS Ph.D. program at Cornell University.
2. **Reykjavik University.** *Hlynur B. Karlsson* 2011–2012
Honors thesis title: “Towards Improving the Scalability of Virtual Worlds”.
1. **Reykjavik University.** *Benedikt Kristinsson* 2011
Honors thesis title: “Ardrand: The Arduino as a Hardware Random-Number Generator”.

UNDERGRADUATE RESEARCH MENTORSHIP

10. **Emory University.** *Etna Ozkara* 2022
Research supervision.
9. **Emory University.** *George Hu* 2019
Summer research supervision internship, funded by NSF REU.

8. **Reykjavik/Emory University.** *Helgi Sigurbjarnarson* 2012–2015
Research and TA supervision. Two publications, including a Best Student Paper award at ACM SYSTOR 2016. Enrolled in CS Ph.D. program at University of Washington (UW).
7. **Reykjavik/Emory University.** *Helga Gudmundsdottir* 2012–2015
Research and TA supervision. Three publications. Reykjavik University CS Valedictorian. Recipient of Google Anita Borg Fellowship. Enrolled in CS Ph.D. program at University of Washington (UW).
6. **Technion/Peking University.** *Yuanchao Zhu* 2012–2013
Research supervision. Two publications.
5. **Technion/Peking University.** *Zipeng Liu* 2012–2013
Research supervision. Two publications. Enrolled in CS Ph.D. program at University of British Columbia (UBC).
4. **Technion/Peking University.** *Annie Liu* 2012–2013
Research supervision. Two publications. Enrolled in CS Ph.D. program at Princeton University.
3. **Reykjavik University.** *Gunnar S. Sigurbjarnarson* 2011–2013
Research supervision. Two publications.
2. **Reykjavik University.** *Hjörtur Björnsson* 2013
Summer research supervision. One publication.
1. **Reykjavik University.** *Sindri Magnusson* 2012
Summer research supervision. One publication. Enrolled in CS Ph.D. program at KTH.

PATENTS

- IBM Research.** *Allocation Enforcement in a Multi-Tenant Cache Mechanism.* 2014 (published)
With Gregory Chockler, Guy Laden and Benjamin M. Pares. United States Patent Application #20130138891.
- IBM Research.** *Cache Optimization Via Predictive Cache Size Modification.* 2014 (published)
With Gregory Chockler and Guy Laden. United States Patent Application #20130138889.
- Yahoo! Research.** *Adaptive Resource Allocation for Parallel Execution of Range Query.* 2010 (published)
With Rodrigo Fonseca, Brian Frank Cooper and Adam Silberstein. United States Patent Application #20100332660.
- Yahoo! Research.** *Parallel Execution of Range Query.* 2010 (published)
With Adam Silberstein and Brian Frank Cooper. United States Patent Application #20100082655.

PAPERS AND PUBLICATIONS

Notes: Each paper title is a hyperlink to a PDF copy of the article.

Co-authors marked with * were students/post-docs working under my supervision.

Co-authors marked with [◊] were junior student collaborators.

Papers in computer systems are marked with ●; in data science are marked with ●.

PEER-REVIEWED JOURNAL ARTICLES

9. ● Y. Vigfusson, TA. Karlsson*, D. Onken*, C. Song*, AF. Einarsson*, N. Kishore*, RM. Mitchell, E. Brooks-Pollock, G. Sigmundsdottir, L. Danon. *Cellphone traces reveal infection-associated behavioral change*. In the *Proceedings of the National Academy of Sciences (PNAS)*, 118(6). 6 pages (40 pages supplementary information).
8. ● RM. Mitchell, Z. Zhou, M. Sheth, S. Sergeant, M. Frace, V. Nayak, B. Hu, J. Giming, F. ter Kuile, K. Lindblade, L. Slutsker, HJ. Mary, M. Desai, K. Otieno, S. Kariuki, Y. Vigfusson, YP. Shi. *Development of a new barcode-based, multiplex-PCR, next-generation-sequencing assay and data processing and analytical pipeline for multiplicity of infection detection of P. falciparum*. In the *Malaria Journal* 20:92. 33 pages.
7. ● L. Zhang*, R. Karimi*, I. Ahmad, Y. Vigfusson. *Optimal Data Placement for Heterogeneous Cache, Memory, and Storage Systems*. In the *Proceedings of the ACM on Measurement and Analysis of Computing Systems ACM on Measurement and Analysis of Computing Systems (POMACS)* 4(1):6. January 2020. 27 pages.
6. ● N. Kishore*, R.M. Mitchell, T.L. Lash, C. Reed, L. Danon, G. Sigmundsdóttir, Y. Vigfusson. *Flying, Phones and Flu: Anonymized call records suggests that Keflavik International Airport introduced pandemic H1N1 into Iceland in 2009*. In *Influenza and Other Respiratory Viruses*, 14(1). January 2020. 9 pages.
5. ● L. Mustonen*, X. Gao, A. Santana, R.M. Mitchell, Y. Vigfusson, L. Ruthotto. *A Bayesian Framework for Molecular Strain Identification from Mixed Diagnostic Samples*. In *IOP Inverse Problems* 34(10), October 2018. 22 pages.
4. ● H. Johansen, R. van Renesse, Y. Vigfusson, D. Johansen. *Fireflies: Secure and Scalable Membership and Gossip Service*. In *ACM Transactions on Computer Systems (TOCS)* 33(2) 5:1–5:32. April 2015. 32 pages. 32 citations.
3. ● R. Guerraoui, K. Huguenin, A-M. Kermarrec, M. Monod, Y. Vigfusson. *Decentralized Polling with Respectable Participants*. In *Journal of Parallel and Distributed Computing (JPDC)* 72(1). January, 2012. 14 pages. 21 citations.
2. ● G. Chockler, G. Laden, Y. Vigfusson. *Design and Implementation of Caching Services in the Cloud*. In *IBM Journal of Research and Development (R&D)* 55(4). December, 2011. 11 pages. 35 citations.
1. ● V. Gramoli*, Y. Vigfusson, K. Birman, A.M. Kermarrec, R. van Renesse. *Slicing Distributed Systems*. In *IEEE Transactions on Computers* 58(11). November 2009. 11 pages. 18 citations.

PEER-REVIEWED CONFERENCE PUBLICATIONS

37. ● D.H. Kurniawan, R. Wang, K. Zulkifli, F.A. Wiranata, J. Bent, Y. Vigfusson, H.S. Gunawi. *EVStore: Scaling Embedding Tables for Deep Recommendation Systems*. In *28th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, Vancouver, Canada. April 2023.
36. ● L. Zhang*, V. Anand, Z. Xie, Y. Vigfusson, J. Mace. *The Benefit of Hindsight: Tracing Edge-Cases in Distributed Systems*. In *USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, Boston, MA. April 2023.
35. ● C. Yang, H. Song*, M. Tang, L. Danon, Y. Vigfusson. *Dynamic Network Anomaly Modeling of Cell-Phone Call Detail Records for Infectious Disease Surveillance*. **Best Paper Award (Health Day Track)**. At the *ACM International Conference on Knowledge Discovery and Data Mining (KDD)*, Washington, DC. August 2022. 11 pages.
34. ● A. Gujarati, R. Karimi*, S. Alzayat, A. Kaufmann, Y. Vigfusson, J. Mace. *Serving DNNs like Clockwork: Performance Predictability from the Bottom Up*. **Distinguished Artifact Award**. At *14th USENIX Symposium on Operating Systems Design and Implementation (OSDI)*, Banff, Canada. November 2020. 12 pages. Acceptance rate: 17.6%.
33. ● L. Zhang*, J. Yang*, A. Blasiak, M. McCall, Y. Vigfusson. *When is the Cache Warm? Manufacturing a Rule of Thumb*. At *12th USENIX Workshop on Hot Topics in Cloud Computing (HotCloud)*, Boston, MA. July 2020. 5 pages.
32. ● C. Ziems*, Y. Vigfusson., F. Morstatter. *Aggressive, Repetitive, Intentional, Visible, and Imbalanced: Refining Representations for Cyberbullying Classification*. **Best Paper Honorable Mention**. At *AAAI 14th International Conference on Web and Social Media (ICWSM)*, Atlanta, GA. June 2020. 12 pages.
31. ● L. Zhang*, R. Karimi*, I. Ahmad, Y. Vigfusson. *Optimal Data Placement for Heterogeneous Cache, Memory, and Storage Systems*. **Best Student Paper**. In *ACM on Measurement and Analysis of Computing Systems (SIGMETRICS)*, Boston, MA. June 2020. 27 pages.

30. ● H. Yoon*, J. Yang*, S. F. Kristjansson, S. E. Sigurdarson, **Y. Vigfusson**, A. Gavrilovska. *Mutant: Balancing Storage Cost and Latency in LSM Tree Data Stores*. In *ACM Symposium on Cloud Computing (SOCC)*, Carlsbad, CA. October 2018. 12 pages. 4 citations.
29. ● J. Yang*, R. Karimi*, T. Saemundsson, A. Wildani, **Y. Vigfusson**. *Mithril: Mining Sporadic Associations for Cache Prefetching*. In *ACM Symposium on Cloud Computing (SOCC)*, Santa Clara, CA. September 2017. 14 pages. 4 citations.
28. ● L. Tang, Q. Huang, A. Puntambekar, **Y. Vigfusson**, W. Lloyd, K. Li. *Popularity Prediction of Facebook Videos for Higher Quality Streaming*. In *USENIX Annual Technical Conference (ATC)*, Santa Clara, CA. July 2017. 13 pages. 20 citations.
27. ● X. Chen*, **Y. Vigfusson**, D. Blough, F. Zheng, K-L. Wu, L. Hu. *Governor: Smoother Stream Processing Through Smarter Backpressure*. In *IEEE International Conference on Autonomic Computing (ICAC)*, Columbus, OH. July 2017. 12 pages. 5 citations. .
26. ● H. Sigurbjarnarson*, P.O. Ragnarsson*, J. Yang*, **Y. Vigfusson**, M. Balakrishnan. *Enabling Space Elasticity in Storage Systems*. **Best Student Paper**. In *Proc. 9th ACM International Systems and Storage Conference (SYSTOR)*, Haifa, Israel. June 2016. 11 pages. 4 citations.
25. ● R. Friedman, A. Libov, **Y. Vigfusson**. *Distilling the Ingredients of P2P Live Streaming Systems*. In *Proc. International Conference on Peer-to-Peer Computing (P2P)*, Cambridge, MA. September 2015. 10 pages. 5 citations.
24. ● P. Rovelli*, **Y. Vigfusson**. *PMDs: Permission-based Malware Detection System*. In *International Conference on Information Systems Security (ICISS)*, Hyderabad, India. December 2014. 20 pages. 23 citations.
23. ● T. Saemundsson*, H. Bjornsson*, G. Chockler, **Y. Vigfusson**. *Dynamic Performance Profiling of Cloud Caches*. In *Proc. ACM Symposium on Cloud Computing (SOCC)*, Seattle, WA. November, 2014. 14 pages. 66 citations.
22. ● Q. Huang[◇], H. Gudmundsdottir*, **Y. Vigfusson**, D. Freedman, K. Birman, R. van Renesse. *Characterizing Load Imbalance in Real-World Networked Caches*. In *Proc. ACM Workshop on Hot Topics in Networks (Hotnets)*, Los Angeles, CA. October, 2014. 7 pages. 41 citations.
21. ● H. Gudmundsdottir*, E.I. Ásgeirsson, M.H.L. Bodlaender, J.T. Foley, M.M. Halldorsson, **Y. Vigfusson**. *Extending Wireless Algorithm Design to Arbitrary Environments via Metricity* In *Proc. ACM International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM)*, Montreal, Canada. September, 2014 10 pages. 8 citations.
20. ● H. Sigurbjarnarson*, P.O. Ragnarsson*, **Y. Vigfusson**, M. Balakrishnan. *Harmonium: Elastic Cloud Storage via File Motifs*. In *Proc. USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage)*, Philadelphia, PA. June, 2014. 5 pages. 4 citations.
19. ● R. Friedman, A. Libov, **Y. Vigfusson**. *MOLStream: A Modular Rapid Development and Evaluation Framework for Live P2P Streaming*. In *Proc. International Conference on Distributed Computing Systems (ICDCS)*, Madrid, Spain. June, 2014. 10 pages. 6 citations.
18. ● H. Abu-Libdeh, R. van Renesse, **Y. Vigfusson**. *Leveraging Sharding in the Design of Scalable Replication Protocols*. In *Proc. Symposium on Cloud Computing (SOCC)*, Santa Clara, CA. October, 2013. 16 pages. 14 citations.
17. ● K.V. Jonsson*, **Y. Vigfusson**. *Robust Authentication in Trusted Sensing Networks with Physically Uncloneable Functions*. In *17th Nordic Conference in Secure IT Systems (NordSec)*. October, 2012. 8 pages. 2 citations.
16. ● K.V. Jonsson*, K. Palmiskog, **Y. Vigfusson**. *Secure Distributed Top-k Aggregation*. In *IEEE International Conference on Communications (ICC)*, Ottawa, Canada. June, 2012. 6 pages. 7 citations.
15. ● K.V. Jonsson*, **Y. Vigfusson**, O.R. Helgason. *Simulating Large-Scale Dynamic Random Graphs in OMNeT++*. In *5th International Workshop on OMNeT++ joint with SIMUTools*, Desenzano, Italy. March, 2012.
14. ● K.V. Jonsson*, **Y. Vigfusson**. *Bootstrapping Trust in Networked Measurement Systems with Secure Sensors*. **Best Student Paper**. In *IEEE Sensors Applications Symposium (SAS)*, Brescia, Italy. February 2012. 6 pages. 4 citations.
13. ● K.V. Jonsson*, **Y. Vigfusson**. *Securing Distributed Aggregation with Trusted Devices*. In *16th Nordic Conference in Secure IT Systems (NordSec)*. October, 2011. (Short paper)
12. ● R. Melamed, G. Laden, **Y. Vigfusson**. *Adaptive and Dynamic Funnel Replication in Clouds*. In *Proc. ACM Workshop on Large-Scale Distributed Systems and Middleware (LADIS)*, Seattle, WA. July, 2011. 6 pages. 5 citations.

11. ● Q. Huang[◊], D. Freedman, **Y. Vigfusson**, K. Birman, B. Peng. *Keplar: A Flexible Infrastructure for Wide-Area Collaborative Applications*. In *Proc. ACM/IFIP/USENIX 11th International Conference on Middleware*, Bangalore, India. November 2010. 20 pages.
10. ● G. Chockler, G. Laden, **Y. Vigfusson**. *Data Caching as a Cloud Service*. In *Proc. ACM Workshop on Large-Scale Distributed Systems and Middleware (LADIS)*, Zürich, Switzerland. July 2010. 4 pages. 29 citations.
9. ● D. Basin, K. Birman, I. Keidar, **Y. Vigfusson**. *Sources of Instability in Data Center Multicast*. In *Proc. ACM Workshop on Large-Scale Distributed Systems and Middleware (LADIS)*, Zürich, Switzerland. July 2010. 5 pages. 17 citations.
8. ● Q. Huang[◊], **Y. Vigfusson**, K. Birman, H. Li^{*}. *Quilt: A Patchwork of Multicast Regions*. In *Proc. ACM International Conference on Distributed Event-Based Systems (DEBS)*, Cambridge, UK. July 2010. 12 pages. 8 citations.
7. ● S. Girdzijauskas, G. Chockler, **Y. Vigfusson**, Y. Tock, R. Melamed. *Magnet: Practical Subscription Clustering for Internet-Scale Publish/Subscribe*. In *Proc. ACM International Conference on Distributed Event-Based Systems (DEBS)*, Cambridge, UK. July 2010. 12 pages. 53 citations.
6. ● **Y. Vigfusson**, H. Abu-Libdeh, M. Balakrishnan, R. Burgess, K. Birman, G. Chockler, H. Li, Y. Tock. *Dr. Multicast: Rx for Data Center Communication Scalability*. In *Proc. European Conference on Computer Systems (EuroSys)*, Paris, France. April 2010. 14 pages. 123 citations.
5. ● **Y. Vigfusson**, Q. Huang, K. Birman, D. Nataraj. *GO: Platform Support For Gossip Applications*. In *Proc. ACM Workshop on Large-Scale Distributed Systems and Middleware (LADIS)*, Big Sky, MT. October 2009. 6 pages.
4. ● **Y. Vigfusson**, Q. Huang, K. Birman, D. Nataraj. *GO: Platform Support For Gossip Applications*. In *Proc. International Conference on Peer-to-Peer Computing (P2P)*, Seattle, WA. September 2009. 10 pages. 17 citations.
3. ● **Y. Vigfusson**, A. Silberstein, B. Cooper, R. Fonseca. *Adaptively Parallelizing Distributed Range Queries*. In *Proc. International Conference on Very Large Data Bases (VLDB)*, Lyon, France. August 2009. 12 pages. 20 citations.
2. ● **Y. Vigfusson**, H. Abu-Libdeh, M. Balakrishnan, K. Birman, Y. Tock. *Dr. Multicast: Rx for Data Center Communication Scalability*. In *Proc. ACM Workshop on Hot Topics in Networks (Hotnets-VII)*, Alberta, Canada. October 2008. 6 pages.
1. ● B. Wong, **Y. Vigfusson**, E.G. Sirer. *Hyperspaces for Object Clustering and Approximate Matching in Peer-to-Peer Overlays*. In *Proc. ACM Workshop on Hot Topics in Operating Systems (HotOS-XI)*, San Diego, CA. May 2007. 6 pages. 15 citations.

PEER-REVIEWED SHORT PAPERS, ABSTRACTS, AND POSTERS

20. ● R. Karimi^{*}, A. Simpson, A. Kaufmann, **Y. Vigfusson**, J. Mace. *Letting the Cloud Serve DNN Inferences With Ruthless Efficiency*. (Poster and presentation). 2 pages. In *AI SYSTEMS'19 Workshop at SOSP 2019*, Huntsville, Ontario. October 2019.
19. ● H. Yoon^{*}, J. Yang^{*}, **Y. Vigfusson**, A. Gavrilovska. *SpaceLease: A Cloud Cache with Performance Isolation*. (Poster). In *13th USENIX Symposium on Operating Systems Design and Implementation (OSDI)*, Carlsbad, CA. October 2018.
18. ● N. Kishore^{*}, R. Mitchell, T.L. Lash, L. Danon, G. Sigmundsdóttir, **Y. Vigfusson**. *Flying, Phones and Flu: An evaluation of Keflavik International Airport and its role in the introduction of pandemic H1N1 into Iceland in 2009 using anonymized call records*. (Poster) In *6th International Conference on Infectious Disease Dynamics (EPIDEMICS 6)*. Sitges, Spain. November 29, 2017.
17. ● R.M. Mitchell, Z. Zhou, S.B. Sergeant, M. Sheth, V. Nayak, M. France, B. Hu, S. Sammons, S. Kariuki, M. Desai, L. Ruthotto, **Y. Vigfusson**, Y.P. Shi. *Novel Genotyping and Mathematical Algorithm for Estimation of the Multiplicity of Infection (MOI) of Malaria Parasites*. (Abstract) In *2017 Conference of the American Society of Tropical Medicine and Hygiene (ASTMH)*. Baltimore, MD. November 8, 2017.
16. ● H. Yoon^{*}, **Y. Vigfusson**, A. Gavrilovska. *Multi-Temperature LSM Tree-Based Database Storage*. (Poster and presentation). In *15th USENIX Conference on File and Storage Technologies (FAST)*, Santa Clara, CA. February 2017.

15. ● J. Yang*, R. Karimi*, **Y. Vigfusson**. *A Simple Cache Prefetching Layer Based on Block Correlation*. (Poster and presentation). In *15th USENIX Conference on File and Storage Technologies (FAST)*, Santa Clara, CA. February 2017.
14. ● H. Yoon*, **Y. Vigfusson**, A. Gavrilovska. *Multi-Temperature LSM Tree-Based Database Storage*. (Poster). In *12th USENIX Symposium on Operating Systems Design and Implementation (OSDI)*, Savannah, GA. November 2016.
13. ● X. Chen*, **Y. Vigfusson**, D. Blough, F. Zheng, K-L. Wu, L. Hu. *Smoother Stream Processing Through Smarter Back Pressure*. (Poster). In *12th USENIX Symposium on Operating Systems Design and Implementation (OSDI)*, Savannah, GA. November 2016.
12. ● J. Yang*, R. Karimi*, **Y. Vigfusson**. *Mithril: Mining block correlation for cache prefetching*. (Poster). In *12th USENIX Symposium on Operating Systems Design and Implementation (OSDI)*, Savannah, GA. November 2016.
11. ● H. Sigurbjarnarson*, P.O. Ragnarsson*, J. Yang*, **Y. Vigfusson**, M. Balakrishnan. *Enabling Space Elasticity in Storage Systems*. (Poster). In *9th ACM International Systems and Storage Conference (SYSTOR)*, Haifa, Israel. June 2016.
10. ● H. Bjornsson*, G. Chockler, T. Saemundsson*, **Y. Vigfusson**. *Dynamic Performance Profiling for Cloud Caches*. (Poster). In *Proc. Symposium on Cloud Computing (SOCC)*, Santa Clara, CA. October, 2013.
9. ● E.I. Asgeirsson, M.M. Halldorsson, P. Mitra, J. Foley, H. Gudmundsdottir*, S.F. Kristjansson*, S. Magnusson*, H. Ulfarsson, **Y. Vigfusson**, *Distributed Scheduling for Data Aggregation in Wireless Networks*. In *11th Workshop on Models and Algorithms for Planning and Scheduling Problems (MAPSP)*, Pont à Mousson, France. June, 2013.
8. ● **Y. Vigfusson**, K. Birman, D.A. Freedman, Q. Huang°, K.V. Jonsson*, G. Sigurbjornsson*. *Live Streaming with Utilities, Quality and Cost*. 2 pages. In *Proc. Principles of Distributed Computing (PODC)*, Madeira, Portugal. July 2012. (Brief announcement).
7. ● **Y. Vigfusson**, A. Liu*, W. Liu*, Y. Zhu*, G. Sigurbjornsson*, K.V. Jonsson*, Q. Huang°, K. Birman, D.A. Freedman. *Live Network Streaming with Utilities and Cost*. 2 pages. In *6th ACM SIGOPS/SIGACT Workshop on Large-Scale Distributed Systems and Middleware (LADIS)*, Madeira, Portugal. July 2012. (Invited).
6. ● **Y. Vigfusson**, A. Liu*, W. Liu*, Y. Zhu*, G. Sigurbjornsson*, K.V. Jonsson*, Q. Huang°, K. Birman, D.A. Freedman. *Gradient: Balancing Cost and User Utility for Live Network Streaming* At *3rd ACM SIGOPS Asia-Pacific Workshop on Systems (APSys)*, Seoul, South Korea. July 2012. (Poster).
5. ● D. Basin, K. Birman, I. Keidar, **Y. Vigfusson**. *Sources of Instability in Data Center Multicast*. In *Proc. Principles of Distributed Computing (PODC)*, Zürich, Switzerland. July 2010. (Brief announcement).
4. ● **Y. Vigfusson**, H. Abu-Libdeh*, M. Balakrishnan, K. Birman, G. Chockler, Y. Tock. *Dr. Multicast: Harnessing IP Multicast in Data Centers*. **Best Poster Award**. At *USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, Boston, MA. April 2009. (Poster)
3. ● **Y. Vigfusson**, H. Abu-Libdeh*, M. Balakrishnan, K. Birman, Y. Tock. *Dr. Multicast: Rx for Data Center Communication Scalability*. In *Proc. Workshop on Large-Scale Distributed Systems and Middleware (LADIS)*, White Plains, NY. September 2008. 6 pages.
2. ● V. Gramoli°, **Y. Vigfusson**, K. Birman, A.M. Kermarrec, R. van Renesse. *Sliver: A Fast Distributed Slicing Algorithm* In *Proc. Principles of Distributed Computing (PODC)*, Toronto, Canada. August 2008. (Brief announcement). 2 pages.
1. ● M.M. Halldorsson, H. Thorgeirsson, **Y. Vigfusson**, H.G. Thormar, J.J. Jonsson. *CATTAGAT: Web Server for Primer Specificity Scan*. At *Genome Informatics Workshop (GIW)*, Yokohama, Japan. December 2004. (Poster).

INVITED BOOK CHAPTERS

2. ● L. Aniello, R. Baldoni, G. Chockler, G. Laventman, G. Lodi, **Y. Vigfusson**. *Distributed Attack Detection Using Agilis*. Invited chapter in the book *Collaborative Financial Infrastructure Protection: Tools, Abstractions and Middleware*. Springer (ISBN 987-3-642-20419-7). January, 2012.
1. ● M. Marchetti, M. Colajanni, M. Messor, L. Aniello, **Y. Vigfusson**. *Cyber Attacks on Financial Critical Infrastructures*. Invited chapter in the book *Collaborative Financial Infrastructure Protection: Tools, Abstractions and Middleware*. Springer (ISBN 987-3-642-20419-7). January, 2012.

INVITED JOURNAL ARTICLES

3. ● R. Melamed, G. Laden, Y. Vigfusson. *Adaptive and Dynamic Funnel Replication in Clouds*. In *SIGOPS Operating Systems Review* (OSR) 46(1). January 2012. (Invited). 6 pages. 5 citations.
2. ● Y. Vigfusson, Q. Huang[◊], K. Birman, D. Nataraj*. *GO: Platform Support For Gossip Applications*. In *SIGOPS Operating Systems Review* (OSR) 44(2). April 2010. (Invited). 20 pages. 8 citations.
1. ● Y. Vigfusson, G. Chockler. *Clouds at the Crossroads: Research Perspectives and Challenges*. In *ACM Crossroads* 16(3) (XRDS), March 2010. (Invited). 8 pages. 13 citations.

SELECTED PRESENTATIONS

62. *Serving DNNs like Clockwork: Performance Predictability from the Bottom Up..* Invited seminar, University of Surrey (Host: Gregory Chockler). May 5, 2022.
61. *Serving DNNs like Clockwork: Performance Predictability from the Bottom Up..* Invited seminar, University of Washington (Host: Tom Anderson). January 6, 2021.
60. *Serving DNNs like Clockwork: Performance Predictability from the Bottom Up..* Invited seminar, Cornell University (Host: Robbert van Renesse). February 10, 2021.
59. *Serving DNNs like Clockwork: Performance Predictability from the Bottom Up..* Invited seminar, Stanford University, DAWN Lab (Host: Matei Zaharia). December 10, 2020.
58. *You Should Learn How to Hack*. Invited Talk: TEDxReykjavik: Reykjavik, Iceland: October 13, 2019. **Over 350,000 views since April 21, 2020.**
57. *Think Like a Hacker*. Invited talk by the Emory Alumni Association. Atlanta, GA: March 13, 2019.
56. *Caches in the Modern Memory Hierarchy with Persistent Memory and Flash (with Irfan Ahmad)*. Invited tutorial (3.5 hours): The 17th USENIX Conference on File Systems and Storage (**FAST'19**): Boston, MA. February 25, 2019.
55. *Why You Too Should Think Like a Hacker*. Keynote address: European Confederation of Institutes of Internal Auditors Conference (EIIICA). Madrid, Spain: September 4, 2018.
54. *Hackers: Who? How? Why?* Keynote address: Microsoft Technical Conference: GDPR – Challenge Accepted, Athens, Greece: March 19, 2018.
53. *Caches for the Persistent Memory and Flash Era (with Irfan Ahmad)*. Invited tutorial (3 hours): The 2018 Non-Volatile Memory Workshop (**NVMW'18**): San Diego, CA. March 11, 2018.
52. *Why You Should Think Like a Hacker*. Keynote address: SINFO 25, Lisbon, Portugal: February 28, 2018.
51. *Helping out the middle class (in the cache) with the MITHRIL prefetching algorithm*. Invited seminar: INESC-ID, Lisbon, Portugal: February 27, 2018.
50. *Caches for the Persistent Memory and Flash Era (with Irfan Ahmad)*. Tutorial (4 hours): The 16th USENIX Conference on File Systems and Storage (**FAST'18**): Oakland, CA. February 12, 2018.
49. *Spectre and Meltdown attacks explained understandably*. YouTube: January 5, 2018. **Over 47,000 views as of June, 2022.**
48. *Novel Genotyping and Mathematical Algorithm for Estimation of the Multiplicity of Infection (MOI) of Malaria Parasites*. Accepted Oral Presentation: Annual conference of the American Society of Tropical Medicine and Hygiene (ASTMH). Baltimore, MD. November 8, 2017.
47. *Novel Genotyping and Mathematical Algorithm for Estimation of the Multiplicity of Infection (MOI) of Malaria Parasites*. Invited seminar: Centers for Disease Control (CDC/CGH/DPDM/MB), Atlanta GA. October 30, 2017.
46. *Why You Should Think Like a Hacker*. Keynote address: NZZ X.Days Conference, Interlaken, Switzerland: March 27, 2017.
45. *The Rowhammer Attack*. Invited talk: UTmessan IT-conference, Reykjavik, Iceland: February 8, 2017. **Over 22,000 views as of June, 2022.**
44. *Profiling In-memory Caches Dynamically*. Invited Systems Lunch: Cornell University, Ithaca, NY: September 30, 2016.

43. *Using Competitions to Drive Innovation in Finance*. Invited speaker: RB National Conference, Reykjavik, Iceland: May, 2016.
42. *Thinking Like a Hacker*. EUMMA talk: Emory University, Atlanta, GA: March, 2016.
41. *Dynamic Performance Profiling of In-Memory Caches*. Colloquium: University of Arizona, Tucson, AZ: January, 2016.
40. *Elastic Cloud Storage*. Invited talk: Facebook, Menlo Park, CA: August, 2015.
39. *Elastic Cloud Storage*. Seminar: University of South California (USC), Los Angeles, CA: July, 2015.
38. *Dynamic Performance Profiling of Cloud Caches*. SOCC '14: Seattle, WA: November 4, 2014.
37. *Harmonium: Elastic Cloud Storage via File Motifs*. HotStorage '14: Philadelphia, PA: June 17, 2014.
36. *Why I Teach People How to Hack*. TEDxReykjavik: Reykjavik, Iceland: May 17, 2014.
Over 1,800,000 views as of December 2022.
35. *Dynamic Performance Profiling of Memory Caches*. Math&CS Colloquium: Emory University, Atlanta, GA: February 24, 2014.
34. *Dynamic Performance Profiling of Memory Caches*. Invited seminar: Georgia Institute of Technology, Atlanta, GA: December 5, 2013.
33. *Dynamic Performance Profiling of Memory Caches*. Invited seminar: Facebook Headquarters, Menlo Park, CA: October 8, 2013.
32. *Dynamic Performance Profiling of Memory Caches*. Invited seminar: Twitter Headquarters, San Francisco, CA: October 8, 2013.
31. *Dynamic Performance Profiling for Cloud Caches*. Invited seminar: Cloudphysics, Mountain View, CA: October 7, 2013.
30. *The Bitter Truth: You Are Always Insecure*. UT-messan IT Conference: Reykjavik, Iceland: February 7, 2013.
29. *How Alan Turing Cracked the Enigma Code*. IBM Research Invited Seminar: Haifa, Israel: December 4, 2012.
28. *How Alan Turing Cracked the Enigma Code*. Technion CSE Colloquium: Haifa, Israel: December 3, 2012.
27. *Optimized Networked Systems* Technion TCE Guest Lecture. Haifa, Israel: November 5, 2012.
26. *Gradient: Live Network Streaming with Utilities and Cost*. LADIS '12. Madeira, Portugal: July 19, 2012.
25. *Live Streaming with Utilities, Quality and Cost*. PODC '12. Madeira, Portugal: July 18, 2012.
24. *Alan Turing: The Man Who Won the Battle of Britain*. ICE-TCS Alan Turing Centenary Series. Reykjavik University, Iceland: February 17, 2012.
23. *Making Systems Scalable with Consistent Hashing*. UTmessan IT Conference. Reykjavik, Iceland: February 9, 2012.
22. *Introduction to Game Theory with Applications to Network Traffic*. Warwick University, Complexity Guest Lecture Series. Coventry, UK: September 23, 2011.
21. *But What is Cloud Computing?* SKYRR Technology Conference, Invited Talk. Reykjavik, Iceland: September 9, 2011.
20. *Ultra Scalable Messaging Systems*. Reykjavik University, Invited Talk. Reykjavik, Iceland: May 6, 2011.
19. *Ultra Scalable Messaging Systems*. Cornell University, Invited Seminar. Ithaca, NY: April 6, 2011.
18. *Ultra Scalable Messaging Systems*. University of Michigan, Invited Seminar. Ann Arbor, MI: March 31, 2011.
17. *Ultra Scalable Messaging Systems*. University of Chicago, Invited Colloquium. Chicago, IL: March 30, 2011.
16. *Ultra Scalable Messaging Systems*. Technion University, Distributed Systems Seminar. Haifa, Israel: March 17, 2011.
15. *Patchwork Multicast*. Technion University, Industrial Engineering Seminar Series. Haifa, Israel: October 26, 2010.
14. *Patchwork Multicast*. Reykjavik University, Invited Talk. Reykjavik, Iceland: December 30, 2010.
13. *Data Caching as a Cloud Service*. LADIS '10. Zürich, Switzerland: July 29, 2010.

12. *Quilt: A Patchwork of Multicast Regions*. DEBS '10. Cambridge, UK: July 14, 2010.
11. *Dr. Multicast: Rx for Data Center Communication Scalability*. EuroSys '10. Paris, France: April 16, 2010.
10. *Affinity in Distributed Systems*. Reykjavik University, ICE-TCS Seminar. Reykjavik, Iceland: September 18, 2009.
9. *Adaptively Parallelizing Distributed Range Queries*. University of Pierre Marie Curie (LIP6), Seminar. Paris, France: November 23, 2009.
8. *Group Scalability in Distributed Systems*. IRISA-INRIA, Seminar. Rennes, France. November 18, 2009.
7. *Group Scalability in Distributed Systems*. Technion University, ClubNet Seminar. Haifa, Israel: November 11, 2009.
6. *Optimizing Information Flow in the Gossip Objects Platform*. LADIS '09. Big Sky, MO: October 11, 2009.
5. *Adaptively Parallelizing Distributed Range Queries*. VLDB '09. Lyon, France: August 26, 2009.
4. *Dr. Multicast: Rx for Data Center Communication Scalability*. IBM Research, Seminar. Haifa, Israel: January 13, 2009.
3. *Dr. Multicast: Rx for Data Center Communication Scalability*. HotNets '08. Calgary, Canada: October 6, 2008.
2. *Dr. Multicast: Rx for Data Center Communication Scalability*. LADIS '08. White Plains, NY: September 17, 2008.
1. *Sliver: A Fast Distributed Slicing Algorithm*. PODC '08. Toronto, Canada: August 19, 2008.

PROFESSIONAL SERVICE

38. External Reviewer for the USENIX Symposium on Networked Systems Design and Implementation (**NSDI'23**). December 2022.
37. Program Committee Member of the USENIX Conference on Operating Systems Design and Implementation (**OSDI'22**). July 2022.
36. General Co-chair of the 12th ACM SIGOPS Workshop on Large-scale Distributed Systems and Middleware (**LADIS'21**) workshop, online. April 2021.
35. Extended Review Committee Member of the USENIX Annual Technical Conference (**ATC'21**). July 2021.
34. Iceland COVID-19 Task Force, epidemiological modeling and movement monitoring of Coronavirus. April 2020.
33. Program Committee Member of the 12th USENIX Workshop on Hot Topics in Cloud Computing (**HotCloud'20**), Boston, MA. July 2020.
32. Extended Review Committee Member of the 20th ACM/IFIP International Middleware Conference (**Middleware'19**), Davis, CA. December 2019.
31. Extended Review Committee Member of the USENIX Annual Technical Conference (**ATC'19**), Renton, WA. July 2019.
30. Program Committee Member of the European Conference on Computer Systems (**EuroSys'19**), Dresden, Germany. April 2019.
29. **National Science Foundation (NSF) Panelist**, 2015–2021. Invited as reviewer to six panels.
28. Program Committee Member of the 9th ACM SIGOPS/SIGMOD Symposium on Cloud Computing (**SOCC'18**), Santa Clara, CA. July 2018.
27. General Co-chair of the 10th ACM SIGOPS Workshop on Large-scale Distributed Systems and Middleware (**LADIS'18**) workshop, London, United Kingdom. July 2018.
26. Program Committee Member (Distributed Algorithms and Theory track) of the 38th IEEE International Conference on Distributed Computing Systems (**ICDCS'18**), Vienna, Austria. July 2017.
25. Program Committee Member of the 8th ACM SIGOPS/SIGMOD Symposium on Cloud Computing (**SOCC'17**), Santa Clara, CA. July 2017.

24. General Co-chair of the 9th ACM SIGOPS Workshop on Large-scale Distributed Systems and Middleware (**LADIS'17**) workshop, Belfast, Serbia. April 2017.
23. Program Committee Member (Distributed Fault Tolerance and Dependability track) of the 37th IEEE International Conference on Distributed Computing Systems (**ICDCS'17**), Atlanta, GA. June 2017.
22. Program Committee Member and Registration Chair of the 7th ACM SIGOPS/SIGMOD Symposium on Cloud Computing (**SOCC'16**), San Francisco, CA. October 2016.
21. General Co-chair of the 8th ACM SIGOPS Workshop on Large-scale Distributed Systems and Middleware (**LADIS'15**) workshop, Monterey, CA. October 2015.
20. Program Committee Member of the 15th IEEE International Conference on Peer-to-Peer Computing (**P2P'15**), Cambridge, MA. September 2015.
19. Program Committee Member of the 6th ACM SIGOPS/SIGMOD Symposium on Cloud Computing (**SOCC'15**), Big Island, HA. August 2015.
18. Program Committee Member (Track C) of the 42nd International Colloquium on Automata, Languages and Programming (**ICALP'15**), Kyoto, Japan. July 2015.
17. Program Committee Member of the 45th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (**DSN'15**), Rio de Janeiro, Brazil. June 2015.
16. Program Committee Member of the 9th Annual EuroSys Doctoral Workshop (**EuroDW'15**), Seattle, WA. April 2015.
15. Program Committee Member of the 5th ACM SIGOPS/SIGMOD Symposium on Cloud Computing (**SOCC'14**), Seattle, WA. November 2014.
14. General Co-chair of the 7th Workshop on Large-scale Distributed Systems and Middleware (**LADIS'14**) workshop, Cambridge, UK. October 2014.
13. Program Committee Member of the 14th IEEE International Conference on Peer-to-Peer Computing (**P2P'14**), London, UK. September 2014.
12. Program Committee Member of the 7th ACM International Systems and Storage Conference (**SYSTOR'14**), Haifa, Israel. June 2014.
11. Poster Program Committee Member of the European Conference on Computer Systems (**EuroSys'14**). Amsterdam, The Netherlands. April 2014.
10. General Co-chair of the 6th ACM SIGOPS Large-scale Distributed Systems and Middleware (**LADIS'13**) workshop, Farmington, PA. November 2013.
9. Program Committee Member of the 13th IEEE International Conference on Peer-to-Peer Computing (**P2P'13**), Trento, Italy. September 2013.
8. Program Committee Member of the European Conference on Computer Systems (**EuroSys'13**), Prague, Czech Republic. April 2013.
7. Program Committee Member of the 12th IEEE International Conference on Peer-to-Peer Computing (**P2P'12**), Tarragona, Spain. September 2012.
6. Program Committee Member of the 17th Nordic Conference on Secure IT Systems (**Nordsec**), Karlskrona, Sweden. October 2012.
5. Program Committee Member and General Co-chair of the 6th ACM SIGOPS/SIGACT Workshop on Large-Scale Distributed Systems and Middleware (**LADIS**) workshop, Madeira, Portugal. July 2012.
4. Program Committee Member of the TERENA Networking Conference (**TNC**), Reykjavik, Iceland. May 2012.
3. General Co-chair of the 5th VLDB Large-scale Distributed Systems and Middleware (**LADIS**) workshop, Seattle, WA. September 2011.
2. General Co-chair of the 4th ACM SIGOPS/SIGACT Large-scale Distributed Systems and Middleware (**LADIS**) workshop, Zürich, Switzerland. July 2010.
1. External reviewer for Science (2013), IEEE Transactions on Networking (ToN) (2011-2013), ACM Computing Surveys (2010), Lecture Notes in Computer Science (2010) and the International Symposium on Distributed Computing (DISC) (2009,2010).