

Jacob Sorber

School of Computing
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Research Interests

I make **embedded systems, mobile sensors, wearables**, and other **computational things** smaller, more efficient, lower cost, longer-lasting, and easier to deploy. My students and I develop and deploy new hardware and software technologies, tools, and abstractions that help embedded devices adapt to changing conditions, recover from frequent power failures, and operate maintenance-free for decades.

Education

University of Massachusetts Amherst Ph.D., M.S. in Computer Science	2010
Brigham Young University B.S. in Computer Science	2002

Academic Positions

School of Computing, Clemson University Associate Professor, 2017– Assistant Professor, 2012–2017	Clemson, SC
Computer Science, Dartmouth College Research Associate/Instructor, 2010–2012	Hanover, NH

Honors and Awards

- Fulbright Scholar to Botswana**
July 2019–April 2020
- NSF CAREER Award**
The Faculty Early Career Development (CAREER) Program. 2015
- ACM SenSys Best Paper Award**
“Ekho: Realistic and Repeatable Experimentation for Tiny Energy-Harvesting Sensors,” J. Hester, T. Scott, J. Sorber November 2014
- Dean’s Professor of Computer Science**
College of Engineering and Science 2016

ACM SenSys Best Poster Award

“Towards Robust Reprogrammability for Wireless Sensors,” N. Tobias, C. Bolton, J. Hester, L. Sitanayah, J. Sorber. November 2015

MobiSys Ph.D. Forum Best Presentation Award

June 2008

Publications

Refereed Journal Publications

Auracle: Detecting eating episodes with an ear-mounted sensor

S. Bi, T. Wang, N. Tobias, J. Nordrum, S. Wang, G. Halvorsen, S. Sen, R. Peterson, K. Odame, K. Caine, R. Halter, J. Sorber, D. Kotz

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT/Ubicomp), Volume 2, Issue 3, September 2018.

Realistic and Repeatable Emulation of Energy Harvesting Environments

J. Hester, L. Sitanayah, T. Scott, J. Sorber

ACM Transactions on Sensor Networks, Volume 9, Number 4, Article 39, March 2017.

Shoulder Angel: An Open Platform for Reprogramming Wayward Wireless Sensors

N. Tobias, C. Bolton, J. Hester, L. Sitanayah, J. Sorber

IEEE Embedded Systems Letters, Volume 8, Issue 4, December 2016.

Persistent Clocks for Intermittently Powered Devices

J. Hester, N. Tobias, A. Rahmati, D. Holcomb, L. Sitanayah, K. Fu, J. Sorber

ACM Transactions on Embedded Computing Systems, Volume 15 Issue 4, August 2016.

Hide-n-Sense: Preserving Privacy Efficiently in Wireless mHealth

S. Mare, J. Sorber, M. Shin, C. Cornelius, D. Kotz

Mobile Networks and Applications (MONET), Volume 19, Issue 3, pp 331–344, June, 2014. Special issue of Wireless Technology for Pervasive Healthcare, Copyright © 2014 Springer-Verlag.

Tula: Balancing Energy for Sensing and Communication in a Perpetual Mobile System

J. Sorber, A. Balasubramanian, M. D. Corner, J. Ennen, C. Qualls

IEEE Transactions on Mobile Computing, Volume 12, Issue 4, April 2013 ¹.

Parallel Search for LTL Violations

M. D. Jones, J. Sorber

International Journal on Software Tools for Technology Transfer, Volume 7, Issue 1, Feb 2005.

Refereed Conference and Workshop Papers²

Measuring Children’s Eating Behavior with a Wearable Device

S. Bi, Y. Lu, N. Tobias, E. Ryan, T. Masterson, S. Sen, R. Halter, J. Sorber, D. Gilbert-Diamond, D. Kotz

Proceedings of the 2020 IEEE International Conference on Healthcare Informatics (ICHI), 2020.

¹Previously published as University of Massachusetts Technical Report #UM-CS-2009-058, December 2009.

²Acceptance rates are provided when available, based on conference websites and personal communications with conference organizers. All acceptance rate percentages reflect the rates of full papers, accepted based on full paper reviews.

Time-sensitive Intermittent Computing Meets Legacy Software

V. Kortbeek, K. S. Yildirim, A. Bakar, J. Sorber, J. Hester, P. Pawelczak
Proceedings of the 25th Architectural Support for Programming Languages and Operating Systems (ASPLOS), March 2020. [Live Program cancelled due to Covid-19].

Application memory isolation on ultra-low-power MCUs

T. Hardin, R. Scott, P. Proctor, J. Hester, J. Sorber, D. Kotz
Proceedings of the USENIX Annual Technical Conference (USENIX ATC'18), July 2018. [20% acceptance rate].

Flicker: Rapid Prototyping for the Batteryless Internet-of-Things

J. Hester, J. Sorber
Proceedings of the 15th ACM Conference on Embedded Networked Sensor Systems (SenSys'17), November 2017. [17.2% acceptance rate — Best Paper Award Candidate (Top 5)].

Timely Execution on Intermittently Powered Batteryless Sensors

J. Hester, K. Storer, J. Sorber
Proceedings of the 15th ACM Conference on Embedded Networked Sensor Systems (SenSys'17), November 2017. [17.2% acceptance rate].

The Future of Sensing is Batteryless, Intermittent, and Awesome

J. Hester, J. Sorber
Proceedings of the 15th ACM Conference on Embedded Networked Sensor Systems (SenSys'17), November 2017. [23.5% acceptance rate (New Directions Paper)].

Toward a Wearable Sensor for Eating Detection

S. Bi, T. Wang, E. Davenport, R. Peterson, R. Halter, J. Sorber, D. Kotz
Proceedings of the 2017 Workshop on Wearable Systems and Applications (WearSys'17), June 2017.

Sustainable Leakage Monitoring Systems for Water Distribution Pipeline Networks

S. Yazdekhashti, K. R. Piratla, J. Sorber
2017 ASCE Pipelines Conferences, Phoenix, AZ.

Amulet: An Energy-Efficient, Multi-Application Wearable Platform

J. Hester, T. Peters, T. Yun, R. Peterson, J. Skinner, B. Golla, S. Hearndon, K. Storer, K. Freeman, S. Lord, R. Halter, D. Kotz, J. Sorber
Proceedings of the 14th ACM Conference on Embedded Networked Sensor Systems (SenSys), November 2016. [15.9% acceptance rate].

Realistic Simulation for Tiny Batteryless Sensors

M. Furlong, J. Hester, K. Storer, J. Sorber
Proceedings of the 4th Workshop on Energy Harvesting and Energy-Neutral Sensing Systems (EN-Ssys), November 2016..

Towards A Language and Runtime for Intermittently Powered Devices

J. Hester, K. Storer, L. Sitanayah, J. Sorber
Proceedings of the Workshop on Hilariously Low-Power Computing (HLPC), April 2016.

Tragedy of the Coulombs: Federating Energy Storage for Tiny, Intermittently-Powered Sensors

J. Hester, L. Sitanayah, J. Sorber
Proceedings of the 13th ACM Conference on Embedded Networked Sensor Systems (SenSys), November 2015. [19.8% acceptance rate].

Ekho: Realistic and Repeatable Experimentation for Tiny Energy-Harvesting Sensors

J. Hester, T. Scott, J. Sorber

Proceedings of the 12th ACM Conference on Embedded Networked Sensor Systems (SenSys), November 2014. [17.9% acceptance rate, **Best Paper Award**].

Current Events: Identifying Webpages by Tapping the Electrical Outlet

S. Clark, H. Mustafa, B. Ransford, J. Sorber, K. Fu, W. Xu

Proceedings of the 18th European Symposium on Research in Computer Security (ESORICS), September 2013. [18% acceptance rate].

WattsUpDoc: Power Side Channels to Nonintrusively Discover Untargeted Malware on Embedded Medical Devices

S. Clark, B. Ransford, A. Rahmati, S. Guineau, J. Sorber, W. Xu, K. Fu

USENIX Workshop on Health Information Technologies, August 2013.

Provenance framework for mHealth

A. Prasad, R. Peterson, S. Mare, J. Sorber, K. Paul, D. Kotz

Proceedings of the Workshop on Networked Healthcare Systems (NetHealth), Bangalore, India. January, 2013.

Understanding Sharing Preferences and Behavior for mHealth Devices

A. Prasad, J. Sorber, T. Stablein, D. Anthony, D. Kotz

Proceedings of the Workshop on Privacy in the Electronic Society (WPES), Raleigh, NC. November 15, 2012. [28% acceptance rate].

TARDIS: Time and Remanence Decay in SRAM to Implement Secure Protocols on Embedded Devices without Clocks

A. Rahmati, M. Salajegheh, D. Holcomb, J. Sorber, W. Bursleson, K. Fu

Proceedings of the 21st USENIX Security Symposium, Bellevue, WA. August 2012. [19% acceptance rate].

Who wears me? Bioimpedance as a passive biometric

C. Cornelius, J. Sorber, R. Peterson, J. Skinner, R. Halter, D. Kotz

Proceedings of the USENIX Workshop on Health Security and Privacy (HealthSec), Bellevue, WA. August, 2012.

Plug-n-Trust: Practical trusted sensing for mHealth

J. Sorber, M. Shin, R. Peterson, D. Kotz

Proceedings of the International Conference on Mobile Systems, Applications, and Services (MobiSys), pages 309-322, Low Wood Bay, UK. June, 2012. [18% acceptance rate].

An Amulet for Trustworthy Wearable mHealth

J. Sorber, M. Shin, R. Peterson, C. Cornelius, S. Mare, A. Prasad, Z. Marois, E. Smithayer, D. Kotz

Proceedings of the Twelfth Workshop on Mobile Computing Systems and Applications (HotMobile), San Diego, California. February 2012. [20% acceptance rate].

Ekho: Bridging the Gap Between Simulation and Reality in Tiny Energy-Harvesting Sensors

H. Zhang, M. Salajegheh, K. Fu, and J. Sorber

Proceedings of the 4th Workshop on Power-Aware Computing and Systems (HotPower), Cascais, Portugal. October 2011. [26% acceptance rate].

Adapt-lite: Privacy-aware, Secure, and Efficient mHealth Sensing

S. Mare, J. Sorber, M. Shin, C. Cornelius, D. Kotz

Proceedings of the 10th annual ACM Workshop on Privacy in the Electronic Society (WPES), Chicago, Illinois. October 2011.

Mementos: System Support for Long-Running Computation on RFID-Scale Devices

B. Ransford, J. Sorber, K. Fu

Proceedings of the 16th Architectural Support for Programming Languages and Operating Systems (ASPLOS), Newport Beach, California. March 2011 [21% acceptance rate].

Eon: A Language and Runtime System for Perpetual Systems

J. Sorber, A. Kostadinov, M. Garber, M. Brennan, M. D. Corner, E. D. Berger

Proceedings of the 5th International Conference on Embedded Networked Sensor Systems (SenSys), Sydney, Australia. 2007. [16.8% acceptance rate].

Triage: Balancing Energy Consumption and Quality of Service in Tiered Microservers

N. Banerjee, J. Sorber, M. D. Corner, S. Rollins, and D. Ganesan

Proceedings of the 5th International Conference on Mobile Systems, Applications and Services (MobiSys), San Juan, Puerto Rico. June 2007, [20% acceptance rate].

Turducken: Hierarchical Power Management for Mobile Devices

J. Sorber, N. Banerjee, M. D. Corner, and S. Rollins

Proceedings of the 3rd International Conference on Mobile Systems, Applications and Services (MobiSys), Seattle, WA. June 2005. [24% acceptance rate].

Book Chapters

Understanding User Privacy Preferences for mHealth Data Sharing

A. Prasad, J. Sorber, T. Stablein, D. Anthony and D. Kotz

Mobile Health (mHealth): Multidisciplinary Verticals, chapter 50, Taylor & Francis (CRC Press), 2014. Accepted for publication. ©2014 by authors.

Invited / Unrefereed Publications

Batteries Not Included

J. Hester, J. Sorber

XRDS: ACM Crossroads, Vol. 26 Iss. 1, Fall 2019.

Vocal resonance as a passive biometric

C. Cornelius, Z. Marois, J. Sorber, R. Peterson, S. Mare, D. Kotz

Technical Report TR2014-747, Dartmouth College, Hanover, NH, February, 2014.

Current events: Compromising web privacy by tapping the electrical outlet

S. Clark, B. Ransford, J. Sorber, W. Xu, E. Learned-Miller, K. Fu

Technical Report UM-CS-2011-030, University of Massachusetts, Amherst, MA, July 2012.

Tula: Balancing Energy for Sensing and Communication in a Perpetual Mobile System

J. Sorber, A. Balasubramanian, M. D. Corner, J. Ennen, C. Qualls

Technical Report UM-CS-2009-058. University of Massachusetts, Amherst, MA. December 2009.

Presentations

Finding Your Place in the Club

J. Sorber

Keynote Speaker at CU Hackit, Clemson, SC, January 2019.

Learning to Compute on Unreliable Power

J. Sorber

Invited Seminar at the University of Michigan, Ann Arbor, MI, February 2018.

Hardware and Electronics for Transiently Powered Devices

J. Sorber

IDEA League Transiently Powered Computing Doctoral School, TU Delft, November 2017.

Flicker: Rapid Prototyping for the Batteryless Internet-of-Things

J. Hester (presenter), J. Sorber

ACM Conference on Embedded Networked Sensor Systems (SenSys'17), Delft, The Netherlands, November 2017..

Timely Execution on Intermittently Powered Batteryless Sensors

J. Hester (presenter), K. Storer, J. Sorber

ACM Conference on Embedded Networked Sensor Systems (SenSys'17), Delft, The Netherlands, November 2017..

The Future of Sensing is Batteryless, Intermittent, and Awesome

J. Hester, J. Sorber (presenter)

ACM Conference on Embedded Networked Sensor Systems (SenSys'17), New Directions Panel, Delft, The Netherlands, November 2017..

A Batteryless Revolution in the Internet of Things

J. Sorber

Invited speaker at the RCID Research Seminar (Clemson University), Clemson, SC, March 2017.

Computing on Unreliable Power

J. Sorber

Invited seminar at Stony Brook University, Stony Brook, NY, October 2016.

Tragedy of the Coulombs: Federating Energy Storage for Tiny, Intermittently-Powered Sensors

J. Hester (presenter), L. Sitanayah, J. Sorber

ACM Conference on Embedded Networked Sensor Systems (SenSys 2015), Seoul, South Korea, November 2015.

Batteries Not Included: Moving Toward Long-Term Sustainable Sensing

J. Sorber

Keynote Speech, 3rd International Workshop on Energy Harvesting & Energy Neutral Sensing Systems, Seoul, South Korea, November 2015.

Demo: A Hardware Platform for Separating Energy Concerns in Tiny, Intermittently-Powered Sensors

J. Hester (presenter), L. Sitanayah, J. Sorber

ACM Conference on Embedded Networked Sensor Systems (SenSys 2015), Seoul, South Korea, November 2015.

Poster: Towards Robust Reprogrammability for Wireless Sensors

N. Tobias (presenter), C. Bolton, J. Hester, L. Sitanayah, J. Sorber

ACM Conference on Embedded Networked Sensor Systems (SenSys 2015), Seoul, South Korea, November 2015.

Enabling Long-Term Sensing Without Batteries

Jacob Sorber

Invited seminar at Brigham Young University, Provo, UT, May 2015.

Enabling Long-Term Sensing Without Batteries

Jacob Sorber

Invited seminar at Florida Atlantic University, Boca Raton, FL, April 2015.

CAREER Proposal Writing Advice

Jacob Sorber

NSF CISE CAREER Proposal Writing Workshop (presenter/panelist, Washington D.C., March 2015.

Ekho: Realistic and Repeatable Experimentation for Tiny Energy-Harvesting Sensors

J. Hester (*presenter*), T. Scott, J. Sorber

ACM Conference on Embedded Networked Sensor Systems (SenSys 2014), Memphis, TN, November 2014.

Demo: Ekho: Realistic And Repeatable Experimentation For Tiny Energy-harvesting Sensors

J. Hester (*presenter*), T. Scott, J. Sorber

ACM Conference on Embedded Networked Sensor Systems (SenSys 2014), Memphis, TN, November 2014.

Enabling computational jewelry for mHealth applications (Poster)

A. Molina-Markham (*presenter*), R. Peterson, J. Skinner, R. J. Halter, J. Sorber, D. Kotz

ACM International Conference on Mobile Systems, Applications, and Services (MobiSys), Bretton Woods, NH, June 2014.

Enabling Sustainable Sensing in Adverse Environments (Poster)

J. Hester (*presenter*), T. King, A. Probst, K. Piratla, J. Sorber

IEEE International Conference on Sensing, Communication, and Networking, New Orleans, LA, June 2013 (Best Poster Award).

Challenges in Securing mHealth Infrastructure

J. Sorber

Securing IT in Healthcare, Part III (workshop), Dartmouth College, Hanover, NH, USA, May 17, 2013.

Bridging the Gap Between Simulation and Reality in Tiny Energy-Harvesting Sensors

J. Sorber

MIT CSAIL, Invited Seminar, Cambridge, MA, USA. October, 17, 2011.

Practical Trusted Computing for mHealth Sensing (Poster)

J. Sorber (*presenter*), M. Shin, R. Peterson, and D. Kotz

The 9th International Conference on Mobile Systems, Applications, and Services (MobiSys), Bethesda, MD, USA. June 29, 2011.

Enabling Ubiquitous Sensing in Uncertain Energy Environments

J. Sorber

Dartmouth College, Computer Science Department Colloquium, Hanover, NH, USA. May 18, 2011.

Perpetual Systems: Building Embedded Systems to Survive in the Wild

J. Sorber

UMass Lowell, Computer Science Department Colloquium, Lowell, MA, USA. November 17, 2010.

Balancing Sensing and Communication Energy in Perpetual Mobile Networks (Poster)

J. Sorber (*presenter*), A. Balasubramanian, M.D. Corner, J. Ennen, C. Qualls

The 11th International Workshop on Mobile Computing Systems and Applications (HotMobile), Annapolis, MD, USA. February, 22, 2010.

Into the Wild: Taming Uncertainty in Perpetual Systems

J. Sorber

ACM MobiHoc S3 Workshop, invited speaker, New Orleans, Louisiana, USA. May 18, 2009.

TurtleNet: System Support for In-Situ Wildlife Tracking

J. Sorber

Coastal Environmental Sensing Networks (CESN) conference, University of Massachusetts Boston. Boston, MA, USA. April 12, 2007

eFlux: Simple Automatic Adaptation for Environmentally Powered Devices (Poster/Demo)

J. Sorber (*presenter*), A. Kostadinov, M. Brennan, M. D. Corner, and E. D. Berger

The Seventh IEEE Workshop on Mobile Computing Systems & Applications (WMCSA), Semiah-moo Resort, Washington, USA. April 6, 2006.

Sponsored Research

Role	Title/Organization	Total (\$)	Clemson (\$)	Dates
PI	<i>Smart earpiece for supporting healthy eating behaviors (ABR)</i> NSF (CNS-1835974) <i>with Dartmouth College (Clemson PI)</i>	\$1,374,457	\$398,359	10/2018– 9/2020
PI	<i>Computational Jewelry for Mobile Health (ABR)</i> NSF (CNS-1619950) <i>with Dartmouth College (Clemson PI)</i>	\$1,175,419	\$396,420	10/2016– 9/2018
PI	<i>Smart earpiece for supporting healthy eating behaviors</i> NSF (CNS-1565268) <i>with Dartmouth College (Clemson PI)</i>	\$1,400,000	\$700,711	10/2016– 9/2018
PI	<i>CAREER: Enabling Low-Cost, Maintenance-Free, Long-Term Embedded Sensing Without Batteries</i> NSF (CNS-1453607)	\$496,661	\$496,661	9/2015– 8/2020
PI	<i>Game Changer: Solar Powered Peer-toPeer Tracking Network for Oiled and Rehabilitated Sea Otters</i> Oiled Wildlife Conservation Network	\$50,000	\$50,000	7/2014– 9/2016
PI	<i>Computational Jewelry for Mobile Health</i> NSF (1314342) <i>with Dartmouth College (Clemson PI)</i>	\$1,500,026	\$524,680	10/2013– 9/2016
PI	<i>Conservation Corridors for Desert Tortoises</i> U.S. Geological Survey	\$49,995	\$49,995	1/2013– 7/2016
PI	<i>Architectural Support for Transiently-Powered Computing</i> University Research Grant Committee (URGC)	\$10,000	\$10,000	1/2013– 6/2013
PI	<i>Conservation Corridors for Desert Tortoises</i> U.S. Geological Survey	\$8,130	\$8,130	5/2012– 8/2012
Co-PI	<i>CyberSEES: Type 1: Enabling Sustainable Water Supplies Through Self-Powered Sensor-Based Monitoring</i> NSF (1539536)	\$396,011	\$396,011	9/2015– 8/2017
Co-PI	<i>Machinability Modeling and Data Use for Manufacturing: Cost Reduction for Manufacturing of Superalloy Components through Information</i> General Electric	\$235,488	\$235,488	4/2015– 12/2015

Patents

Wearable computing device for secure control of physiological sensors and medical devices, with secure storage of medical records, and bioimpedance biometric.

U.S.A. patent no. 9,936,877(International Patent Application WO2013096954A1) with D. Kotz, R. Halter, C. Cornelius, J. Sorber, M. Shin, R. Peterson, S. Mare, A. Prasad, J. Skinner, A. Molina-Markham. April 2018. Priority date 2011-12-23; Filing date 2017-02-07; Grant date 2018-04-10. Revision of previous patent. This patent adds claims to its predecessor.

Wearable computing device for secure control of physiological sensors and medical devices, with secure storage of medical records, and bioimpedance biometric.

U.S.A. patent no. 9,595,187 (International Patent Application WO2013096954A1) with D. Kotz, R. Halter, C. Cornelius, J. Sorber, M. Shin, R. Peterson, S. Mare, A. Prasad, J. Skinner, A. Molina-Markham. March 2017. Priority date 2011-12-23; Filing date 2012-12-24; Grant date 2017-03-14.

Methods and systems for improving security in zero-power devices

U.S.A. patent no. 9,158,361 with K. Fu and M. Salajegheh.

Graduate Student Advising

Ph.D. Graduates

Josiah Hester (PhD) — May 2017

Topic: Sophisticated Sensing on Transient Power
Assistant Professor at Northwestern University
<http://josiahhester.com/>

Masters Graduates

Ravi Mandliya (MS) — May 2014

Bhargav Golla (MS) — December 2015

Steven Hearndon (MS) — December 2016

Topic: Secure and Efficient Logging and Software Updates for mHealth Wearables

Kevin Storer (MS) — August 2017

Topic: Nuanced Views of Pedagogical Evaluation

Current Graduate Advising

Nicole Tobias (PhD)

Arwa Alsubhi (PhD)

Simeon Babatunde (PhD)

Margi Engineer (PhD)

Post Doctoral Research Advisees

Lanny Sitanayah (2014–2017)

Low-Cost Monitoring of Advanced Manufacturing Systems

Undergraduate Research

Sansriti Ranjan (ECE, 2021) **Charlie Gallentine** (ECE, 2019–2020) **Matthew Rinaldi** (ECE, 2019) **Eric Szczepanik** (ECE, 2019) **Silas Miller** (CS, 2018), **Westin Waldburger** (CS, 2017), **Jeff Rubillo** (CS, 2017), **Nicholas Reed** (CS, 2017), **Joseph McKulka** (ECE, 2017), **Jesse Leopold** (CS, 2017), **Micah Johnson** (CS, 2017), **Nandita Viswanath** (visiting student, 2016), **Calvin Moody** (CS, 2016), **Charles Stahl** (REU, 2016), **Pranav Yerabati Venkata** (REU, 2016), **Jeremy Wilder** (CS, 2016), **Robert Underwood** (CS, 2015–2016), **Connor Bolton** (ECE, 2015–2016), **Caroline Bryant** (CS, 2014–2015), **Michael Smith** (CS, 2015–2016), **Taylor Hardin** (CS, 2015–2016), **Matthew Furlong** (CS, 2014–2016), **Austin Anderson** (CS, 2015–2016), **Brendan Fletcher** (CS, 2014–2015), **Harrison Donellan** (CS, 2015), **Timothy Scott** (CS, 2014), **Diana Zhang** (REU, 2014), **Drew Nederhoff** (REU, 2014), **Siara Fabbri** (REU, 2014), **Tamara Ortega** (REU, 2014), **Kyle McGuigan** (CS, 2012–2013), **Ryan Archer** (CS, 2012–2013)

Outreach

Embedded electronics and programming mini-course.

R. C. Edwards Middle School

2014–

Teaching

Courses Taught

Graduate Embedded Systems (CPSC 8850) — Fall 2018.

Embedded Systems Prototyping (CPSC 4820/6820) — Fall 2016–Fall 2017.

Operating Systems (CPSC/ECE 3220) — Fall 2014–Spring 2021.

Networks and Networked Programming (CPSC 3600) — Spring 2014.

Software Development Foundations (CPSC 2150) — Spring 2013.

Mobile Computing Systems (CPSC 8810) — Fall 2012.

Computer Architecture (Dartmouth College) (CS37) — Summer 2011.

Course Development

Embedded Systems Prototyping (CPSC 4820/6820) — Fall 2016.

Mobile Computing Systems (CPSC 8810) — Fall 2012.

Consulting Experience

SpotterRF LLC, 2010, advised on the design and evaluation of mobile radar systems.

Intel Research, 2007, Research Intern, Ubiquity Group

Memberships

Member, Association for Computing Machinery, ACM (2008–)

Member, ACM Special Interest Group on Mobile Computing (SIGMOBILE) (2008–)

Professional Activities

International Workshop on Energy Harvesting & Energy Neutral Sensing Systems (EN-SSys), Technical Program Committee and Steering Committee Member, 2016–2019

ACM Conference on Embedded Networked Sensor Systems (SenSys 2017), TPC Member, 2019

ACM Conference on Embedded Networked Sensor Systems (SenSys 2017), TPC Member, 2018

ACM International Conference on Mobile Systems, Applications, and Services (MobiSys 2018), TPC Member, 2018

ACM International Workshop on Mobile Computing Systems and Applications (HotMobile 2018), TPC Member, 2018

ACM Conference on Embedded Networked Sensor Systems (SenSys 2017), TPC Member, 2017

ACM/IEEE International Symposium on Low Power Electronics and Design (ISLPED 2017), TPC Member, 2017

International Workshop on Energy Harvesting & Energy Neutral Sensing Systems, Technical Program Committee Chair, 2016

GetMobile (the SIGMobile magazine), Column Editor, 2015–2016

ACM Conference on Mobile Systems, Applications, and Services (MobiSys), Treasurer, 2014

USENIX Workshop on Power-Aware Computing and Systems (HotPower), Technical Program Committee Member, 2014

ACM SIGCOMM Workshop on Medical Device Communication Systems, Technical Program Committee member, 2012

USENIX Workshop on Health Security and Privacy, Technical Program Committee member, 2012

Workshop on Secure Data Management on Smartphones and Mobiles, Technical Program Committee member, 2012

International Conference on Mobile Systems, Applications, and Services, PhD Forum
Chair, 2009