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| Last Updated: | 03/08/2016 |


## Education

6/10 PhD in Computer Science, Harvard
6/03 AB in Physics, Harvard

## Current position

Assistant Professor, Department of Computer Science and Engineering, University at Buffalo

## Research overview

My research group, blue, designs, builds, and evaluates novel computer systems. Currently we are focusing on smartphones. Considered alone, smartphones represent the most capable and successful pervasive computing technology ever deployed. When considered in aggregate, the worldwide network of distributed smartphones comprises the largest distributed system ever built.

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# Students

In total I have graduated 1 PhD student and supervised 45 other students at UB: including 11 PhD students (8 current), 19 Masters students, 14 undergraduates (7 current), and 1 visiting PhD student.

## Current

### PhD

I am currently supervising the following 8 PhD students:

1/12– [1] **Anudipa Maiti**—leading the Jouler smartphone energy management project and investigating smartphone app value estimation. Served as a TA for CSE 421/521 in Spring 2012. Interned in the LiveLabs group at Singapore Management University for Summer 2014. Supported by the Jouler NSF award for 2015–2016. Expected to graduate in 2015.

8/13– [2] **Guru Prasad Srinivasa**—leading the effort to design power-agile operating systems for mobile devices and also investigating energy-performance tradeoffs between Wifi and mobile data networks. Served as a TA for CSE 421/521 in Spring 2013, Spring 2014, and Spring 2015. Interned at Microsoft Research India in Summer 2014. Supported by the Power Agility NSF award for for 2015–2016.

8/13– [3] **Jinghao Shi**—collaborating with Microsoft Research on ways to validating wireless protocols and investigating energy-performance tradeoffs between Wifi and mobile data networks. Also serves as the point of contact for PHONELAB researchers on experiments and maintains the PHONELAB platform build. Served as a TA for CSE 421/521 in Spring 2014 and Spring 2015. Co-advised with Chunming Qiao. Interned at Microsoft Research in Summer 2015. Supported by the PhoneLab NSF award in 2015–2016.

8/13– [4] **Carl Nuessle**—studying smartphone file system access patterns and working on next-generation file system features. Served as an unofficial course assistant for CSE 421/521 in Spring 2014. Self-supported in 2015–2016.

1/15– [5] **Yihong Chen**—leading the `maybe` uncertainty-based adaptation project and contributing to the Jouler smartphone energy management effort. Served as an unofficial course assistant for CSE 421/521 in Spring 2015. Supported by the Jouler NSF award for 2015–2016.

1/15– [6] **Ali Ben Ali**—working on tracking use of multiple personal devices using a smart watch and activity recognition. Supported as a TA in 2015–2016.

9/15– [7] **Jerry Ajay**—investigating smartphone database access patterns and next-generation data storage paradigms. Interned at HP Labs for Summer 2015. Supported as a TA in 2015–2016.

9/15– [8] **Scott Haseley**—working on improving quality of experience on mobile smartphones. Supported in 2015–2016 by the Power Agility NSF award.

#### Undergraduate

I am currently supervising the following 7 undergraduates on research and instructional projects. I am also currently working with Harshita Girase, Devashish Agarwal, Gela Malek Pour, and Isaac Reath on various other projects.

2/15– [1] **Brijesh Rakholia**—working on using interface events to detect bugs and user-facing latency and an online quiz tool for website-based courses. Supported during the 2014–2015 academic year by the PhoneLab REU supplement.

6/15– [2] **Edwin Santos**—working on comparing the Android Open Source Project to Android "modder" communities and on maintaining PHONELAB. Supported during Summer 2015 by the PhoneLab REU supplement.

6/15– [3] **Kyle Schoener**—working on the Jouler smartphone energy management project. Supported during Summer 2015 by the PhoneLab REU supplement.

7/15– [4] **John Cherry**—working on studying smartphone file system access patterns.

9/15– [5] **Corey Kress**—working on the `internet-class.org` course website and tools.

9/15– [6] **Wesley Csendom**—working on the `internet-class.org` course website and tools.

10/15– [7] **Aishani Bhalla**—working on an online quiz tool for website-based courses.

### Former

#### PhD Graduates

To date I have graduated 1 PhD student:

8/12–6/15 [1] **Anandatirtha Nandugudi**—worked on physical-layer Wifi modifications to improve streaming content delivery in collaboration with researchers at Microsoft Research (MSR), the PocketParker parking lot monitoring project, the PocketLocker distributed storage system, the smartphone sustainability project, and the PHONELAB smartphone testbed. Co-advised with Chunming Qiao. Interned at AT&T Labs Research for Summer 2013, and at Microsoft Research India in Summer 2014. Supported for three years by the PhoneLab NSF award.

**PhD**

I formerly supervised the following 3 PhD students.

8/11–1/13 [1] **Sonali Batra**–previously co-advised with Steve Ko. Worked on PHONELAB and using smartphones to impersonate wireless access points. Eventually withdrew from the PhD program.

8/12–1/14 [2] **Taeyeon Ki**—currently developing the PHONELAB interface. Previously worked on the PocketParker parking lot monitoring project. Previously co-advised with Steve Ko; now continuing his PhD advised only by Steve Ko.

6/13–8/13 [3] **Tong Guan**—worked on PHONELAB development. Currently continuing his PhD advised by Chunming Qiao.

**Masters**

I formerly supervised the following 17 Masters students:

8/11–6/12 [1] **Micheal Benedict**—helped develop a PHONELAB prototype. Now at Twitter.

8/11–8/12 [2] **Vinu Charanya Athangudi Purushothaman**—helped develop a PHONELAB prototype. Now at Crushpath.

1/12–5/12 [3] **Rajeshwari Adapalam**—worked on using smartphones to impersonate wireless access points.

6/12–1/13 [4] **Manoj Mylapore Chandrasekaran**—worked on PHONELAB development and maintenance. Now at Cerner.

6/12–8/12 [5] **Anuja Raval**—worked on designing power-agile operating systems.

6/12–8/12 [6] **Bhaavya Kapoor**—worked on PHONELAB.

1/13–6/13 [7] **Denise Blady**—helped develop a prototype of the PocketMocker objective-driven context mocking system.

1/13–6/13 [8] **Eric Lehner**—helped develop a prototype of the PocketMocker objective-driven context mocking system.

6/13–8/13 [9] **Gino Buzzelli**—continued developing of a prototype of the PocketMocker objective-driven context mocking systems. Currently finishing his Masters degree at UB.

1/13–8/13 [10] **Agrim Nigam**—worked on using smartphones to prepare for and survive natural disasters.

1/14–6/14 [11] **John Gerber**—worked on using car-mounted discarded smartphones to create a city-scale urban monitoring network. Serving as an unofficial course assistant for CSE 421/521 in Spring 2014.

1/14–6/14 [12] **Nishanth Vasisht**—worked on using smartphones to prepare for and survive disasters.

1/14–9/14 [13] **Scott Haseley**—worked on designing power-agile operating systems for mobile devices and on determining ways to reuse discarded smartphones. Served as an unofficial course assistant for CSE 421/521 in Spring 2014. Supported half-time in Summer 2014 by the PHONELAB project. Beginning the PhD program in Fall 2015.

9/15–6/15 [14] **Jerry Ajay**—contributed to using uncertainty to enable adaptation in mobile systems. Entered the PhD program in Fall 2015.

1/14–6/15 [15] **Sriram Shantharam**—working on using discarded smartphone to create a city-scale slowly-moving car-mounted sensor network, and previously worked on using smartphones to prepare for and survive disasters. Supported full-time in Summer 2014 and part-time in Fall 2014 by the PHONELAB CRI NSF award.

6/15– [16] **Rakesh Balasubramanian**—contributed to using smartphones to create a city-scale sensing platform while also assisting with using smartphones to adapt Wifi networks. Supported in Summer 2015 by the PhoneLab NSF award.

6/15– [17] **Ramya Rao**—contributed to using uncertainty to enable adaptation in mobile systems. Supported in Summer 2015 by the PhoneLab NSF award.

**Undergraduates**

I formerly supervised the following 7 undergraduates:

1/12–8/12 [1] **Sean Zawicki**—worked on PHONELAB. Now at Voxer.

6/12–8/12 [2] **Mitch Nguyen**—worked on PHONELAB.

8/13–6/14 [3] **Frank Rossi**—working on the PocketLocker distributed storage project.

8/13–6/15 [4] **Nick DiRienzo**—worked on using interface events to detect bugs and user-facing latency and the PocketMocker objective-driven context mocking system. Supported during the 2013–2014 and 2014–2015 academic years by the PHONELAB REU supplement NSF award. Now at Optimizely.

10/14–6/15 [5] **Michael Ferris**—worked with Carl Nuessleon next-generation file system interfaces for mobile devices. Supported during the 2014–2015 academic year by the PHONELAB REU supplement NSF award.

2/15– [6] **Gino Notto**—worked on detecting transition between personal devices. Supported during the 2014–2015 academic year by the PhoneLab REU supplement.

9/15– [7] **Er An Khoo**—worked on using interface events to detect bugs and user-facing latency.

**Visiting students**

5/13–7/13 [1] **Aslak Johansen**—visiting PhD student from ITU Copenhagen. Worked on interfacing new sensors to PHONELAB devices. Completed his PhD at ITU in the fall of 2013.

# Teaching

Over five years (2011–2016) I have taught a total of 714 students—an average of 71 per semester—and offered three different courses to advanced undergraduates and graduate students. I have also designed and built `ops-class.org`, an online operating systems instructional framework which is currently used to support my teaching at UB and will eventually be made freely available online.

1/15–6/15 [10] **CSE 421/521: Introduction to Operating Systems** (Spring 2016)

| | **421** | **521** |
|---|---|---|
| Enrollment | 86 | 54 |

8/15–12/15 [9] **CSE 720: Using Uncertainty to Program Mobile Systems** (Fall 2015, new course)

Enrollment 7

1/15–6/15 [8] **CSE 421/521: Introduction to Operating Systems** (Spring 2015)

Note that as of 2015, UB course evaluations are no longer separable by level for cross-listed courses such as CSE 421/521.

| | **421** | **521** |
|---|---|---|
| Enrollment | 88 | 56 |
| Response Rate | 94% | |
| Instructor Rating | 4.65 | |
| Course Rating | 4.24 | |

8/14–12/14 [7] **CSE 720: Personal Cloud Computing** (Fall 2014, new course)

Enrollment 5

1/14–5/14 [6] **CSE 421/521: Introduction to Operating Systems** (Spring 2014)

| | 421 | 521 |
|---|---|---|
| Enrollment | 86 | 75 |
| Response Rate | 84% | 96% |
| Instructor Rating | 4.47 | 4.64 |
| Course Rating | 3.82 | 4.74 |

8/13–12/13 [5] **CSE 720: Smartphone Sustainability** (Fall 2013, new course)

| | |
|---|---|
| Enrollment | 8 |

1/13–5/13 [4] **CSE 421/521: Introduction to Operating Systems** (Spring 2013)

| | 421 | 521 |
|---|---|---|
| Enrollment | 39 | 51 |
| Response Rate | 86% | 95% |
| Instructor Rating | 4.14 | 4.59 |
| Course Rating | 4.59 | 4.68 |

8/12–12/12 [3] **CSE 622: Advanced Systems Research** (Fall 2012, co-taught with Steve Ko)

| | |
|---|---|
| Enrollment | 19 |
| Response Rate | 68% |
| Instructor Rating | 3.77 |
| Course Rating | 3.15 |

1/12–5/12 [2] **CSE 421/521: Introduction to Operating Systems** (Spring 2012)

| | 421 | 521 |
|---|---|---|
| Enrollment | 48 | 51 |
| Response Rate | 63% | 88% |
| Instructor Rating | 3.3 | 3.8 |
| Course Rating | 4.0 | 4.0 |

8/11–12/11 [1] **CSE 622: Advanced Systems Research** (Fall 2011, co-taught with Steve Ko)

| | |
|---|---|
| Enrollment | 23 |

# Funding

I have applied for $11,903,993 in funding, received $2,481,611 (24% of decided submissions) and have $1,407,456 in pending awards.

## Awarded

### Active

2015 [4] **Expressing Uncertainty Using the `maybe` System**
Google, $37,156
PI with Co-PIs Oliver Kennedy and Lukasz Ziarek

9/14–9/17 [3] **CSR: Small: Jouler: A Cross-Device Application Energy Management Framework for Smartphones**
NSF, $499,185
PI (100%)

9/14–9/16 [2] **CSR: Medium: Collaborative Research: Architecture and System Support for Power-Agile Computing**
NSF, $561,766 ($282,930 to UB)
Co-PI (100%) with Mark Hempstead (Drexel University)

6/12–6/16 [1] **CI-ADDO-NEW: PHONELAB: A Programmable Participatory Smartphone Testbed**
NSF, $1,322,510; $36,000 REU supplement awarded in 2013
PI (28%) with co-PIs Steven Y. Ko, Murat Demirbas, Tevfik Kosar, and Chunming Qiao
Extended through 6/16 through a no-cost extension in May 2015.

**Expired**

9/11–9/12 [1] **PHONELAB: A Participatory Smartphone Cloud Testbed**
Google, $60,994
Co-PI (20%) with Steven Y. Ko, Murat Demirbas, Tevfik Kosar and Chunming Qiao

### Pending

2016 [3] **CI-SUSTAIN: Collaborative Research: Sustaining Successful Smartphone Testbeds to Enable Diverse Mobile Experiments**
NSF, $879,952 ($529,952 to UB)
Co-PI (80%) with Chunming Qiao and Z. Morley Mao (University of Michigan)

2016 [2] **CI-P: Enabling Pocket-Scale Data Management Research**
NSF, $1,000,000 Co-PI (20%) with Oliver Kennedy and Lukasz Ziarek

2015 [1] **Modeling uncertainty in health studies using sensor-based personal exposures**
NIEHS (NIH), $427,504
Co-I (5%) with Eun-Hye Yoo (UB Geography), Jessica Castner (UB Nursing), and Albert Vexler (UB Biostatistics)

## Publications

I have published 34 papers and poster abstracts in selective conferences and workshops, 22 since beginning my position at UB, 19 with UB student co-authors, and 3 at top-tier conferences and workshops where UB had never previously published: HotOS, UbiComp, and HotNets. According to Google Scholar[1], my publications have been cited 4825 times resulting in an h-index of 14.

In the list below, top-tier systems and networking conferences and workshops where UB has never published are marked with a †. UB student co-authors are marked with a ⋆. Rankings are from the 2014 edition of the Computing Research and Education Association of Australasia Conference Ratings Exercise (CORE 2014), with top conferences and workshops given either an A* (highly selective) or an A (selective) rating.

### Working papers

[1] **Metrics for Quantifying Quality of Experience on Interactive Mobile Devices**
With Scott Haseley⋆, Brijesh Rakholia⋆ and Er An Khoo⋆
Targeting the *2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp'16)*
*CORE 2014: A**

[1]Google Scholar does a more effective job of indexing the conferences and workshops where computer systems and networking researchers publish their top papers than other tools, and is considered authoritative by researchers in my field.

[2] **Patterns of Interaction with Multiple Personal Devices**
With Ali Ben Ali*
Targeting the *2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp'16)*
*CORE 2014: A**

[3] **Experiences with Personalized Energy Management Using Jouler**
With Anudipa Maiti*
Targeting the *2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp'16)*
*CORE 2014: A**

[4] **Benchmarking Embedded Databases for Android**
With Jerry Ajay*, Lukasz Ziarek, Geoffrey Challen, and Oliver Kennedy

[5] **Achieving Power Agility on Mobile Devices**
With Guru Prasad Srinivasa*, Rizwana Begum, David Werner, and Mark Hempstead

[6] **Smartphone File Access Patterns**
With Carl Nuessle*

## Selective peer-reviewed conferences and workshops

**Submitted**

2016 [2] **Managing Energy of Multi-Component Devices for Mobile Systems** Rizwana Begum, Guru Prasad Srinivasa*, Geoffrey Challen, and Mark Hempstead
Submitted to the *2016 International Symposium on Low Power Electronics and Design (ISLPED'16)*

2016 [1] **Wireless Protocol Validation Under Uncertainty**
Jinghao Shi*, Shuvendu Lahiri, Ranveer Chandra, and Geoffrey Challen
Submitted to the *2016 ACM Conference on Applications, Technologies, Architectures, and Protocols for Computer Communication (SIGCOMM'16)*
CORE 2014: A*

**Published at UB**

2016 [22] **A Walk on the Client Side: Monitoring Enterprise Networks Using Smartphone Channel Scans**
Jinghao Shi*, Lei Meng*, Aaron Striegel, Chunming Qiao, Dimitrios Koutsonikolas, and Geoffrey Challen
To appear in *Proceedings of the 2016 IEEE International Conference on Computer Communications (INFOCOM'16)*
CORE 2014: A*, Acceptance Rate: 18%

2015 [21] **Robust, Cost-Effective and Scalable Localization in Large Indoor Areas**
Tong Guan*, Wen Dong, Dimitrios Koutsonikolas, Geoffrey Challen, and Chunming Qiao
*Proceedings of the IEEE 2015 Global Telecommunications Conference (GLOBECOM'15)*
CORE 2014: B

2015 [20] **Jouler: A Policy Framework Enabling Effective and Flexible Smartphone Energy Management**
Anudipa Maiti*, Yihong Chen*, and Geoffrey Challen
*Proceedings of the Seventh International Conference on Mobile Computing, Applications and Services (MobiCASE'15)*

2015 [19] **Energy-Performance Trade-offs on Energy-Constrained Devices with Multi-Component DVFS**
Rizwana Begum, Guru Prasad Srinivasa*, David Werner, Geoffrey Challen, and Mark Hempstead
*Proceedings of the 2015 IEEE Symposium on Workload Characterization (IISWC'15)*
Acceptance Rate: 33%

2015 [18] **A Little Sharing Goes a Long Way: The Case for Reciprocal Wifi Sharing**
Jinghao Shi*, Liwen Gui, Chunming Qiao, Dimitrios Koutsonikolas, and Geoffrey Challen
*Proceedings of the 2nd ACM Workshop on Hot Topics in Wireless (HotWireless'15)*
Acceptance Rate: 63%

2015 [17] **Pocket Data: The Need for TPC-MOBILE**
Oliver Kennedy, Jerry Ajay*, Geoffrey Challen, and Lukasz Ziarek
*Proceedings of the 7th TPC Technology Conference on Performance Evaluation and Benchmarking (TPCTC'15)*

2015 [16] **`maybe` We Should Enable More Uncertain Mobile Systems Programming**
Geoffrey Challen, Jerry Ajay*, Nick DiRienzo*, Oliver Kennedy, Anudipa Maiti*, Anandatirtha Nandugudi*, Guru Prasad Srinivasa*, Sriram Shantharam*, Jinghao Shi*, and Lukasz Ziarek
*Proceedings of the Sixteenth Workshop on Mobile Computing Systems and Applications (HotMobile'15)*
CORE 2014: C, Acceptance Rate: 28%

2015 [15] **The Missing Numerator: Toward a Value Measure for Smartphone Apps**
Anudipa Maiti* and Geoffrey Challen
*Proceedings of the Sixteenth Workshop on Mobile Computing Systems and Applications (HotMobile'15)*
CORE 2014: C, Acceptance Rate: 28%

2015 [14] **Crowdsourcing Access Network Spectrum Allocation Using Smartphones** (Poster Abstract)
Jinghao Shi*, Zhangyu Guan, Chunming Qiao, Tommaso Melodia, Dimitrios Koutsonikolas, and Geoffrey Challen
*Proceedings of the Sixteenth Workshop on Mobile Computing Systems and Applications (HotMobile'15)*
CORE 2014: C

2014 [13] **Controlling Smartphone User Privacy via Objective-driven Context Mocking**
Nick DiRienzo* and Geoffrey Challen
*Proceedings of the Sixth International Conference on Mobile Computing, Applications and Services (MobiCASE'14)*
Acceptance Rate: 29%

2014 [12] **The PocketLocker Personal Cloud Storage System**
Anandatirtha Nandugudi*, Carl Nuessle*, Geoffrey Challen, Emiliano Miluzzo, and Yih-Farn Chen
*Proceedings of the Sixth International Conference on Mobile Computing, Applications and Services (MobiCASE'14)*
Acceptance Rate: 29%

† 2014 [11] **Crowdsourcing Access Network Spectrum Allocation Using Smartphones**
Jinghao Shi*, Zhangyu Guan, Chunming Qiao, Tommaso Melodia, Dimitrios Koutsonikolas, and Geoffrey Challen
*Proceedings of the 13th ACM Workshop on Hot Topics in Networks (HotNets'14)*
CORE 2014: A, Acceptance Rate: 22%

2014 [10] **Should Smartphone Users Mock Apps?**
Nick DiRienzo* and Geoffrey Challen
*Proceedings of the 6th ACM HotPlanet Workshop (HotPlanet'14)*

† 2014 [9] **PocketParker: Pocketsourcing Parking Lot Availability**
Anandatirtha Nandugudi*, Taeyeon Ki*, Carl Nuessle*, and Geoffrey Challen
*Proceedings of the 2014 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp'14)*
*CORE 2014: A**, Acceptance Rate: 14%

2014 [8] **Enabling MOOC Collaborations Through Modularity**
Geoffrey Challen and Margo Seltzer
*Proceedings of Learning with MOOCs: A Practitioner's Workshop (LWMOOC'14)*

2014 [7] **The Mote is Dead. Long Live the Discarded Smartphone!**
Geoffrey Challen, Scott Haseley⋆, Anudipa Maiti⋆, Anandatirtha Nandugudi⋆, Guru Prasad Srinivasa⋆, Mukta Puri⋆, and Junfei Wang⋆
*Proceedings of the Fifteenth Workshop on Mobile Computing Systems and Applications (HotMobile'14)*
CORE 2014: C, Acceptance Rate: 31%

2014 [6] **New Interfaces for Achieving Power Agility on Mobile Devices** (Poster Abstract)
Guru Prasad Srinivasa⋆, Scott Haseley⋆, Rizwana Begum, Mark Hempstead, and Geoffrey Challen
*Proceedings of the Fifteenth Workshop on Mobile Computing Systems and Applications (HotMobile'14)*
CORE 2014: C

2014 [5] **Smartphone Users Want to Be Mocked** (Poster Abstract)
Nick DiRienzo⋆, Gino Buzzelli⋆, and Geoffrey Challen
*Proceedings of the Fifteenth Workshop on Mobile Computing Systems and Applications (HotMobile'14)*
CORE 2014: C, Best Poster Award

2013 [4] **PhoneLab: A Large Programmable Smartphone Testbed** (Invited Paper)
Anandatirtha Nandugudi⋆, Anudipa Maiti⋆, Taeyeon Ki⋆, Fatih Bulut⋆, Murat Demirbas, Tevfik Kosar, Chunming Qiao, Steven Y. Ko, and Geoffrey Challen
*Proceedings of the First International Workshop on Sensing and Big Data Mining (SenseMine'13).*

2013 [3] **Model-Free HVAC Control Using Participant Feedback**
Sean Purdon, Branislav Kusy, Raja Jurdak, and Geoffrey Challen
*Proceedings of the Second IEEE International Workshop on Global Trends in Smart Cities (goSmart'13)*

2013 [2] **Participant Behavior in PhoneLab**
Anandatirtha Nandugudi⋆, Anudipa Maiti⋆, Fatih Bulut⋆, Sonali Batra, Taeyeon Ki, Geoffrey Challen, Murat Demirbas, Steven Y. Ko, Tevfik Kosar, and Chunming Qiao
*Proceedings of the Third Conference on the Analysis of Mobile Phone Datasets (NetMob'13)*

† 2011 [1] **The Case for Power Agile Computing**
Geoffrey Challen and Mark Hempstead
*Proceedings of the 13th Workshop on Hot Topics in Operating Systems (HotOS'11)*
CORE 2014: A, Acceptance Rate: 25%

**Published as a Harvard PhD student**

2010 [12] **IDEA: Integrated Distributed Energy Awareness for Wireless Sensor Networks**
Geoffrey Challen, Jason Waterman, and Matt Welsh
*Proceedings of the 8th Annual International Conference on Mobile Systems, Applications and Services (MobiSys'10)*
CORE 2014: B

2009 [11] **Mercury: A Wearable Sensor Network Platform for High-Fidelity Motion Analysis**
Konrad Lorincz, Bor-rong Chen, Geoffrey Challen, Atanu Roy Chowdhury, Shyamal Patel, Paolo Bonato, and Matt Welsh
*Proceedings of the Seventh ACM Conference on Embedded Networked Sensor Systems (SenSys'09)*
CORE 2014: A*

2009 [10] **Peloton: Coordinated Resource Management for Sensor Networks**
Jason Waterman, Geoffrey Challen, and Matt Welsh
*Proceedings of the 12th Workshop on Hot Topics in Operating Systems (HotOS'09)*
CORE 2014: A

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Published under the name Geoffrey Werner-Allen

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2008 [9] **Lance: Optimizing High-Resolution Data Collection in Wireless Sensor Networks**
Geoffrey Werner-Allen, Stephen Dawson-Haggerty, and Matt Welsh
*Proceedings of the Sixth ACM Conference on Embedded Networked Sensor Systems (SenSys'08)*
CORE 2014: A*

2008 [8] **Resource-Aware Programming in the Pixie OS**
Konrad Lorincz, Bor-rong Chen, Jason Waterman, Geoffrey Werner-Allen, and Matt Welsh
*Proceedings of the Sixth ACM Conference on Embedded Networked Sensor Systems (SenSys'08)*
CORE 2014: A*

2008 [7] **Pixie: An Operating System for Resource-Aware Programming of Embedded Sensors**
Konrad Lorincz, Bor-rong Chen, Jason Waterman, Geoffrey Werner-Allen, and Matt Welsh
*Proceedings of the Fifth Workshop on Embedded Networked Sensors (HotEmNets'08)*
CORE 2014: C

2006 [6] **Fidelity and Yield in a Volcano Monitoring Sensor Network**
Geoffrey Werner-Allen, Konrad Lorincz, Jeff Johnson, Jonathan Lees, and Matt Welsh
*Proceedings of the Seventh USENIX Symposium on Operating Systems Design and Implementation (OSDI'06)*
CORE 2014: A*

2006 [5] **Deploying a Wireless Sensor Network on an Active Volcano**
Geoffrey Werner-Allen, Konrad Lorincz, Mario Ruiz, Omar Marcillo, Jeff Johnson, Jonathan Lees, and Matt Welsh
*IEEE Internet Computing*, Special Issue on Data-Driven Applications in Sensor Networks, March/April 2006

2005 [4] **Firefly-Inspired Sensor Network Synchronicity with Realistic Radio Effects**
Geoffrey Werner-Allen, Geetika Tewari, Ankit Patel, Radhika Nagpal, and Matt Welsh
*Proceedings of the Third ACM Conference on Embedded Networked Sensor Systems (SenSys'05)*
CORE 2014: A*

2005 [3] **MoteLab: A Wireless Sensor Network Testbed**
Geoffrey Werner-Allen, Pat Swieskowski, and Matt Welsh
*Proceedings of the Fourth International Conference on Information Processing in Sensor Networks (IPSN'05)*
CORE 2014: A*

2005 [2] **Monitoring Volcanic Eruptions with a Wireless Sensor Network**
Geoffrey Werner-Allen, Jeff Johnson, Mario Ruiz, Jonathan Lees, and Matt Welsh
*Proceedings of the Second European Workshop on Wireless Sensor Networks (EWSN'05)*
CORE 2014: A

2004 [1] **Simulating the Power Consumption of Large-Scale Sensor Network Applications**
Victor Shnayder, Mark Hempstead, Bor-rong Chen, Geoffrey Werner-Allen, and Matt Welsh
*Proceedings of the Second ACM Conference on Embedded Networked Sensor Systems (SenSys'04)*
CORE 2014: A*

## Talks

Only talks given as a faculty member are listed. Note that it is typical for student authors, rather than faculty authors, to present accepted papers at conferences and workshops.

### Invited

4/28/2015 [1] **Building Less Certain Mobile Apps**
Presented at the Rochester Institute of Technology Computer Science Seminar. Invited by Peizhao Hu.

## Edited volumes

2010 **Wireless Sensor Networks: Deployments and Design Frameworks**
Edited by Elena Gaura, Mike Allen, Lewis Girod, James Brusey and Geoffrey Challen
Springer, 2010

## Book chapters

2010 **Volcano Monitoring: Addressing Data Quality Through Iterative Deployment**
Geoffrey Challen and Matt Welsh
Appears in *Wireless Sensor Networks: Deployments and Design Frameworks*, Springer, 2010, edited by Elena Gaura, Mike Allen, Lewis Girod, James Brusey and Geoffrey Challen

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# Artifacts

2011 **PhoneLab: A Public Programmable Smartphone Testbed**
`http://www.phone-lab.org`

PHONELAB is a NSF-funded public smartphone testbed used by researchers at the University at Buffalo as well as multiple other research institutions across the United States. Approximately 300 UB students, faculty, and staff carry instrumented smartphones and received subsidized service from Sprint in exchange for participating in smartphone experiments.

2012 **`ops-class.org`: An Online Operating Systems Instructional Framework**
`http://www.ops-class.org`

`ops-class.org` is an online framework providing automated access to operating system programming assignments that use the OS/161 instructional operating system developed at Harvard University. `ops-class.org` is used to support operating system courses at the University at Buffalo and is being developed both into a framework for supporting massive open online courses (MOOCs) and as a collaborative instructional platform designed to engage instructors at other universities.

# Professional service and activities

## Reviewing

**Program committees**

2016 14th Annual International Conference on Mobile Systems, Applications and Services (MobiSys'16)

2015 17th International Workshop on Mobile Computing Systems and Applications (HotMobile'16)

2015 6th Workshop on Real World Wireless Sensor Networks (RealWSN'15)

2015 12th IEEE International Conference on Mobile Ad hoc and Sensor Systems (MASS'15)

2014 10th International Conference on Testbed and Research Infrastructures for the Development of Networks and Communities (TridentCom'15)

2014 14th International Conference on Information Processing in Sensor Networks (IPSN'15)

2014 34th International Conference on Distributed Computing Systems (ICDCS'14)

2014 12th Annual International Conference on Mobile Systems, Applications and Services (MobiSys'14) (External Reviewer)

2013 10th European Conference on Wireless Sensor Networks (EWSN'13)
2013 11th ACM Conference on Embedded Networked Sensor Systems (SenSys'13)
2012 10th ACM Conference on Embedded Networked Sensor Systems (SenSys'12)
2012 12th International Conference on Embedded Software (EMSOFT 2012)
2011 9th ACM Conference on Embedded Networked Sensor Systems (SenSys'11)
2011 32nd IEEE Real-Time Systems Symposium (RTSS'11) (Wireless Network Systems Track).

### Editorships

3/1/2015– Column Editor, GetMobile, the ACM SIGMOBILE magazine.

### Ad-hoc

ACM Transactions on Sensor Networks (TOSN)
IEEE/ACM Transactions on Networking (ToN)
IEEE Transactions on Mobile Computing (TMC)
IEEE Transactions on Parallel and Distributed Systems (TPDS)

## Departmental

### Committees

9/15– **Diversity Committee** (Member)
8/11– **Undergraduate Affairs Committee** (Member, CS Curriculum Subcommittee Chair)
9/14–6/15 **Grievance Committee** (Member)
8/12–6/14, 9/15– **Faculty Search Committee** (Member)
8/11–6/13 **Graduate Admissions Committee** (Member)
8/11–6/12 **Colloquium Committee** (Member)

### Other

4/14 **UB Hackathon 2014** (Judge)
9/13 **Your Passport to Employment** (Moderator)
4/12– **ACM Student Chapter** (Faculty Adviser)
3/12 **UB Hackathon 2012** (Judge)
9/12 **Your Passport to Employment** (Moderator)
12/11 **CSEd Week Puzzle Hunt** (Organizer)
9/11 **Your Passport to Employment** (Moderator)

## Meetings and invitations

10/15 **Google Faculty Summit on Mobile** (Invitee)
12/13 **SmartAmerica Challenge Meeting** (Invitee)
7/11 **Google Faculty Summit** (Invitee)
1/10 **Visiting Researcher**, ITU Copenhagen. Invited by Philippe Bonnet

## Other service activities

2012 **Local Arrangements Chair** for the 10th ACM Conference on Embedded Networked Sensor Systems (SenSys'12)

2011 **Student Travel Grant Chair** for the 9th ACM Conference on Embedded Networked Sensor Systems (SenSys'11)