

# SHADDI HASAN

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## RESEARCH INTERESTS

Computer networks, ICTD, wireless networks, spectrum sharing, network management.

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## EDUCATION

**Ph.D., Computer Science** *May 2019*

University of California, Berkeley

*Thesis: Towards Scalable Community Networks*

Advisor: Eric Brewer

**M.S., Computer Science** *December 2013*

University of California, Berkeley

Advisor: Eric Brewer

**B.S., Computer Science** *May 2010*

University of North Carolina at Chapel Hill

Highest Honors and Highest Distinction

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## AWARDS AND HONORS

Community Award, NSDI *2019*

Best Paper Award, ACM DEV *2015*

Best Paper Award, IEEE DySPAN *2014*

Outstanding Graduate Student Instructor Award *2012*

National Science Foundation Graduate Research Fellowship *2010*

UC Berkeley Chancellor's Fellowship for Graduate Study *2010*

UC Berkeley Computer Science Excellence Award *2010*

UNC-Chapel Hill Order of the Golden Fleece *2010*

UNC-Chapel Hill Order of the Grail-Valkyries *2010*

UNC-Chapel Hill Dunham Scholarship Nominee *2008*

UNC-Chapel Hill Carolina Scholar *2006*

National Merit Scholar *2006*

Coca-Cola National Scholar *2006*

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## PUBLICATIONS

### *Journal Publications*

#### **[A Longitudinal Study of Local, Sustainable, Small-Scale Cellular Networks](#)**

Kurtis Heimerl, Shaddi Hasan, Kashif Ali, Eric Brewer, Tapan Parikh. *Information Technologies and International Development (ITID)*, 2015.

### *Refereed Conference Publications*

#### **[Scaling Community Cellular Networks with CommunityCellularManager](#)**

Shaddi Hasan, Mary Claire Barela, Matthew Johnson, Eric Brewer, Kurtis Heimerl. *USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, 2019. **Community Award.**

#### **[An Investigation of Phone Upgrades in Remote Community Cellular Networks](#)**

Kushal Shah, Philip Martinez, Emre Tepedelenlioglu, Shaddi Hasan, Cedric Festin, Joshua Blumenstock, Josephine Dionisio, Kurtis Heimerl. *International Conference on Information and Communication Technologies for Development (ICTD)*, 2017.

### **The Challenges of Scaling WISPs**

Shaddi Hasan, Yahel Ben-David, Max Bittmann, Barath Raghavan. *ACM Symposium on Computing for Development (ACM DEV)*, 2015. **Best Paper Award.**

### **Analysis of Smartphone Adoption and Usage in a Rural Community Cellular Network**

Kurtis Heimerl, Anuvind Menon, Shaddi Hasan, Kashif Ali, Eric Brewer, Tapan Parikh. *International Conference on Information and Communication Technologies for Development (ICTD)*, 2015.

### **GSM Whitespaces: An Opportunity for Rural Cellular Service**

Shaddi Hasan, Kurtis Heimerl, Kate Harrison, Kashif Ali, Sean Roberts, Anant Sahai, Eric Brewer. *IEEE Symposium on Dynamic Spectrum Access Networks (IEEE DySPAN)*, 2014. **Best Paper Award.**

### **An Experiment in Reducing Cellular Base Station Power Draw with Virtual Coverage**

Kurtis Heimerl, Shaddi Hasan, Kashif Ali, Tapan Parikh, Eric Brewer. *ACM Symposium on Computing for Development (ACM DEV)*, 2013.

### **Local, Sustainable, Small-Scale Cellular Networks**

Kurtis Heimerl, Shaddi Hasan, Kashif Ali, Eric Brewer, Tapan Parikh. *International Conference on Information and Communication Technologies for Development (ICTD)*, 2013.

### **Making Middleboxes Someone Else's Problem: Network Processing in the Cloud**

Justine Sherry, Shaddi Hasan, Colin Scott, Arvind Krishnamurthy, Sylvia Ratnasamy, Vyas Sekar. *ACM SIGCOMM*, 2012.

### **Towards Traffic Benchmarks for Empirical Networking Research: The Role of Connection Structure in Traffic Workload Modeling**

Jay Aikat, Shaddi Hasan, Kevin Jeffay, F. Donelson Smith. *IEEE International Symposium On Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (IEEE MASCOTS)*, 2012.

### **Refereed Workshop Papers**

#### **Macroscopically Sustainable Networking: On Internet Quines**

Barath Raghavan, Shaddi Hasan. *Second Workshop on Computing within Limits (LIMITS)*, 2016.

#### **Building Dissent Networks: Towards Effective Countermeasures against Large-Scale Communications Blackouts**

Shaddi Hasan, Yahel Ben-David, Giulia Fanti, Eric Brewer, Scott Shenker. *USENIX Workshop on Free and Open Communications on the Internet (USENIX FOCI)*, 2013.

#### **Discrete-Approximation of Measured Round Trip Time Distributions: A Model for Network Emulation**

Jay Aikat, Shaddi Hasan, Kevin Jeffay, F. Donelson Smith. *GENI Research and Education Experiment Workshop (GREE)*, 2012.

#### **Computing Security in the Developing World: A Case for Multidisciplinary Research**

Yahel Ben-David, Shaddi Hasan, Joyojeet Pal, Matthias Vallentin, Saurabh Panjwani, Philip Gutheim, Jay Chen, Eric Brewer. *ACM Workshop on Network Systems for Developing Regions (NSDR)*, 2011.

### **Theses**

#### **Towards Scalable Community Networks**

Shaddi Hasan. PhD Dissertation, UC Berkeley, 2019. Department of Electrical Engineering and Computer Science, Technical Report UCB/EECS-2019-67.

#### **Designing Networks for Large-Scale Blackout Circumvention**

Shaddi Hasan. Masters Report, UC Berkeley, 2013. Department of Electrical Engineering and Computer Science, Technical Report UCB/EECS-2013-230.

#### **What If? Scaling Network Traffic for Realistic Experimentation**

Shaddi Hasan. Undergraduate Honors Thesis, UNC Chapel Hill, 2010. Department of Computer Science.

### **Technical Reports**

#### **Enabling Rural Connectivity with SDN**

Shaddi Hasan, Yahel Ben-David, Colin Scott, Eric Brewer, Scott Shenker. UC Berkeley Technical Report UCB/EECS-2012-201, 2012.

## INDUSTRY EXPERIENCE

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- Software Engineer, Facebook** *September 2015 - Present*  
Expanding rural Internet access with Facebook Connectivity. Started the Magma EPC project.
- Co-Founder/CTO, Endaga** *December 2013 - September 2015*  
Developed tools and services for building community cellular networks. Acquired by Facebook.
- Software Engineering Intern, Nicira (now vmWare)** *Summer 2012*  
Developed a randomized testing framework for software defined network applications and controller software.
- Developer, Veer Labs / MalariaRADAR Project** *August 2009 - July 2010*  
Developed camera driver and image processing software for a low-cost, high-throughput, microscopy-based malaria diagnostic and screening tool.
- Research Intern, NASA Jet Propulsion Lab** *Summer 2009*  
Designed and implemented a software framework for applications on a wall-sized multitouch display as part of the NASA Undergraduate Summer Research Program.
- Program Manager Intern, Microsoft** *Summer 2008*  
Designed and prototyped a chat-based mobile advertising platform.

## TALKS AND PRESENTATIONS

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- Towards Scalable Community Networks**  
Bahir Dar University (Bahir Dar, ET) *August 2019*  
UC Berkeley (Berkeley, CA) *May 2019*
- Rural Connectivity**  
Guest Lecture, CSCI499 Computing for Social Good, USC (Los Angeles, CA) *April 2019*  
Guest Lecture, CS268 Computer Networks, UC Berkeley (Berkeley, CA) *April 2019*
- Alternative Infrastructures**  
Guest Lecture, INFO283 ICTD, UC Berkeley (Berkeley, CA) *April 2019*
- Scaling Community Cellular Networks with CommunityCellularManager**  
USC Network Systems Lab Seminar (Los Angeles, CA) *April 2019*  
USENIX NSDI 2019 (Boston, MA) *February 2019*
- Wireless Applications**  
Topic Preview Session, USENIX NSDI 2019 (Boston, MA) *February 2019*
- The Challenges of Scaling WISPs**  
ACM DEV 2015 (London, UK) *December 2015*
- Connecting Internet in Rural Areas**  
MIT Enterprise Forum Mexico (Guadalajara, MX) *March 2015*
- GSM Whitespaces: An Opportunity for Rural Cellular Service**  
IRTF GAIA 2014 (San Jose, CA) *December 2014*  
IEEE DySPAN 2014 (McLean, VA) *April 2014*
- How Can Regulation Accommodate Future Innovations?**  
Panel, Dynamic Spectrum Alliance Summit (Accra, Ghana) *December 2014*
- Community Cellular Networks**  
Berkeley EECS Annual Research Symposium (Berkeley, CA) *February 2014*
- Building Dissent Networks**  
USENIX FOCI 2013 (Washington, DC) *August 2013*
- Computing Security in the Developing World**  
ACM NSDR 2011 (Washington, DC) *June 2011*

## TEACHING EXPERIENCE

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**EE 122: Computer Networks**, *Graduate Student Instructor*, UC Berkeley *Fall 2011, Fall 2012*

Developed “reliable transport” project, now used by hundreds of students across three semesters. Received “Outstanding GSI Award” in Fall 2011.

**COMP 60: Robotics with Lego**, *Teaching Assistant*, UNC Chapel Hill *Fall 2009, Spring 2010*

Co-developed the curriculum and all weekly projects for an innovative general-interest introduction to programming course for first-year students. Led transition of course to instruction in Java.

## SERVICE

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Program Committee, ACM ICTD *2016, 2019, 2020*

Program Committee, ACM COMPASS *2018, 2020*

Reviewer, ACM LIMITS *2017*

Program Committee, ACM DEV *2016*

Reviwer, ACM CHI Works In Progress *2013, 2014*

Co-founder, UNC Technology Without Borders *2009 - 2010*

Co-founder, UNC Computer Science Club Peer Tutoring program *2009 - 2010*

Lead Developer, Oranagemesh (first open-source mesh network management tool) *2008 - 2010*

## REFERENCES

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### **Eric Brewer**

Professor, Computer Science, UC Berkeley  
[brewer@cs.berkeley.edu](mailto:brewer@cs.berkeley.edu)

### **Scott Shenker**

Professor, Computer Science, UC Berkeley  
[shenker@cs.berkeley.edu](mailto:shenker@cs.berkeley.edu)