Aakanksha Chowdhery

(650) 395-7282 • achowdhery@alumni.stanford.edu • http://www.achowdhery.com

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EDUCATION

Stanford University, Stanford, CA (GPA: 4.15/4.30) Sep. 2007–Jun. 2013
MS/PhD in Electrical Engineering
Dissertation Advisor: Prof. John M. Cioffi
Indian Institute of Technology, Delhi, India (CGPA: 9.74/10.00) Jul. 2003–May 2007
Bachelor of Technology in Electrical Engineering

DISTINCTIONS

Paul Baran Marconi Young Scholar awarded to top three young researchers worldwide with potential 2012
 to lead innovation toward advancement of both science and humanity
DARE Fellowship awarded to top 16 Stanford doctoral students with potential to diversify academia 2010-2012
Networking Networking Women Fellowship to organize women's workshop at IEEE Globecom 2011
Finalist among the top 21 in the Qualcomm Innovation Fellowship 2010
Student Travel Grant for IEEE International Conference in Communications (ICC) 2009
Stanford School of Engineering Fellowship 2007-2008
IIT Delhi Institute Silver Medal awarded to the top student in Electrical Engineering department 2007

RESEARCH INTERESTS

Communications and networking, Video Analytics, Edge computing, Mobile systems

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WORK EXPERIENCE

Princeton University Princeton, NJ October 2015–Present
Associate Research Scholar.
Open Fog Consortium October 2015–Present
IoT Architect representing Princeton University Edge Lab.
Microsoft Research Redmond, WA October 2013–2015
Postdoctoral Researcher in Mobility & Networking Group with Dr. Victor Bahl.
Summer Intern with Dr. Ranveer Chandra.
Auto-Grid Inc. Redwood City, CA June 2013–September 2013
Stanford Representative to Standards Committee Stanford, CA 2008–2012
Assia Inc. Redwood City, CA Summer 2008
INRIA Rennes, France Summer 2006

PROFESSIONAL ACTIVITIES

Panelist on National Science Foundation (NSF) proposal review for NeTs Medium 2018.
Technical Program Committee Member: IEEE InfoCom 2016, IEEE Infocom 2017, IEEE Infocom 2018, Fog World
Congress 2017, ACM/IEEE Symposium on Edge Computing 2018, IEEE SECON 2018, IEEE IoTDI 2018
Co-organizer, IEEE Secon Workshop on Unmanned Autonomous Systems' Communications, Data Processing and
Control, 2018
ACM SigComm Publications Co-Chair, 2016
ACM MobiCom Student Research Competition Chair, 2016
ACM MobiSys External Reviewer, 2016
ACM MobiSys PhD Forum Co-Chair, 2015
ACM MobiCom Publications Co-Chair, 2014
Journal Reviews: IEEE Transactions on Mobile Computing, IEEE Transactions on Communications, IEEE
Transactions on Wireless Communications, IEEE Transactions on Signal Processing, IEEE Communications
Letters, IEEE Communications Surveys & Tutorials
External Reviews in Conferences: IEEE International Conference of Communications 2010, IEEE Globecom
Conference 2011, IEEE Wireless Communications and Networking Conference 2012, IEEE WiOpt 2016

RESEARCH PUBLICATIONS

[1] **A. Chowdhery**, and M. Chiang,"Model Predictive Compression for Drone Video Analytics," *submitted to
UbiComp/PACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), 2018.*
[2] **A. Chowdhery**, and K. Jamieson,"Aerial Channel Prediction and User Scheduling in Mobile Drone Hotspots,"
submitted to IEEE Transactions on Networking, 2018.

[3] N. Garg, I. Janveja, D. Malhotra, C. Chawla, P. Gupta, H. Bansal, **A. Chowdhery**, P. Mukherjee, and Brejesh Lall, "DRIZY- Collaborative Driver Assistance Over Wireless Networks," *submitted to ACM/IEEE International Conference on Internet-of-Things Design and Implementation 2018.*

[4] I. Burago, M. Levorato, and **A. Chowdhery**, "Bandwidth-Aware Data Filtering in Edge-Assisted Wireless Sensor Systems," *IEEE International Conference on Sensing, Communication and Networking (SECON), 2017.*

[5] **A. Chowdhery**, M. Levorato, I. Burago and S. Baidya, "Urban IoT Edge Analytics," *book chapter in "Fog Computing in the Internet of Things (Intelligence at the Edge)," Springer, 2017.*

[6] X. Wang, **A. Chowdhery**, and M. Chiang, "Networked Drone Cameras for Sports Streaming," *IEEE International Conference on Distributed Computing Systems (ICDCS) 2017.*

[7] Y. Lu, **A. Chowdhery**, S. Kandula, and S. Chaudhuri, "Accelerating Machine Learning Queries with Probabilistic Predicates," *accepted to ACM SIGMOD 2018.*

[8] X. Wang, **A. Chowdhery**, and M. Chiang, "SkyEyes: adaptive video streaming from UAVs," *Third Workshop on Hot Topics in Wireless (HotWireless'16) (Invited Paper)*, New York, USA, 2016.

[9] Y. Lu, **A. Chowdhery**, and S. Kandula, "Optasia: A Relational Platform for Efficient Large-Scale Video Analytics," *ACM Symposium on Cloud Computing (SoCC)*, Santa Clara, CA, 2016.

[10] Y. Lu, **A. Chowdhery**, and S. Kandula, "VisFlow: A Declarative Platform for Parallelizing Large-Scale Vision Programs," *The 4th International Workshop on Large Scale Visual Recognition and Retrieval (CVPR Workshop)*, Las Vegas, USA, 2016.

[11] T. Zhang, **A. Chowdhery**, V. Bahl, K. Jamieson, and S. Banerjee "The Design & Implementation of a Wireless Video Surveillance System," *ACM SigMobile MobiCom Conference*, Sep 2015.

[12] D. Zhao, **A. Chowdhery**, S. Bahl, and A. Kapoor, "Demo Paper: Game of Drones: A cyberphysical game people play with physiology," *IEEE IPSN Demo 2015.*

[13] M. Zheleva, R. Chandra, **A. Chowdhery**, M. Valerio, P. Garnett, A. Kapoor, and A. Gupta, "Enabling a Nationwide Radio Frequency Inventory Using the Spectrum Observatory," *ACM Transactions of Mobile Computing 2017.*

[14] M. Zheleva, R. Chandra, **A. Chowdhery**, A. Kapoor, and P. Garnett, "TxMiner: Identifying transmitters in real-world spectrum measurements," *IEEE DySpan 2015.*

[15] A. Chowdhery, "Redesign of next-generation broadband-network architectures with limited cooperation, dynamic resource allocation, & cross-layer scheduling," Ph.D. dissertation, Dept. Elect. Eng., Stanford University, Stanford, CA, 2013.

[16] **A. Chowdhery**, R. Chandra, P. Garnett, and P. Mitchell, "Characterizing Spectrum Goodness for Dynamic Spectrum Access," *IEEE Allerton (Invited paper)*, Oct. 2012.

[17] S. Mehryar, **A. Chowdhery**, and W. Yu, "Dynamic Cooperation Link Selection for Network MIMO Systems with Limited Backhaul Capacity," *IEEE International Conference on Communications (ICC)*, Jun. 2012.

[18] K. Kerpez, J. M. Cioffi, S. Galli, G. Ginis, M. Goldburg, M. Mohseni, and **A. Chowdhery**, "Compatibility of Vectored and Non-Vectored VDSL2," *IEEE Conference on Information Sciences and Systems (CISS)*, Mar. 2012.

[19] H. Dahrouj, W. Yu, and **A. Chowdhery**, "Achievable Rate Improvement Using Common Message Decoding for Multicell Networks," *Asilomar Conference on Signals, Systems and Computers*, Nov. 2011.

[20] **A. Chowdhery**, W. Yu, and J. M. Cioffi , "Cooperative Wireless Multicell OFDMA Network with Backhaul Capacity Constraints," *IEEE International Conference on Communications (ICC)*, Jun. 2011.

[21] **A. Chowdhery**, and J. M. Cioffi, "Dynamic Spectrum Management for Upstream Mixtures of Vectored & Non-vectored DSL," *IEEE Globecom*, Dec. 2010.

[22] J. M. Cioffi, H. Zou, **A. Chowdhery**, S. Jagannathan, and W. Lee, "Greening the Copper Access Network with Dynamic Spectrum Management," *International Journal of Autonomous and Adaptive Communications Systems*, Vol. 3, No. 4, pp. 369-395, 2010.

[23] H. Zou, **A. Chowdhery**, and J. M. Cioffi, "A Centralized Multi-Level Water-Filling Algorithm for Dynamic Spectrum Management," *Asilomar Conference on Signals, Systems & Computers (Invited paper)*, Nov. 2009.

[24] **A. Chowdhery**, S. Jagannathan, J. M. Cioffi, and M. Ouzzif, "A Polite Cross-layer Protocol for Contention-based Home Power-line Communications," *IEEE International Conference on Communications*, Jun. 2009.

[25] H. Zou, **A. Chowdhery**, S. Jagannathan, J. M. Cioffi, and J. L. Masson, "Multi-user Joint Subchannel and Power Resource-Allocation for Powerline Relay Networks," *IEEE International Conference on Communications*, Jun. 2009.

[26] **A. Chowdhery**, and R. K. Mallik, "Linear Detection for the Non-orthogonal Amplify and Forward Protocol," *IEEE Transactions on Wireless Communications*, vol. 8, no. 2, pp. 826-835, Feb. 2009.

[27] J. M. Cioffi, H. Zou, **A. Chowdhery**, W. Lee, and S. Jagannathan, "Greener Copper with Dynamic Spectrum Management," *IEEE Globecom*, Dec. 2008.

[28] J. M. Cioffi, S. Jagannathan, W. Lee, H. Zou, **A. Chowdhery**, W. Rhee, G. Ginis, and P. Silverman, "Greener Copper with Dynamic Spectrum Management," *Third International Conference on Access Networks*, Oct. 2008.

Video analytics at scale for mobile Internet-of-things platform	
UW/MSR Summer Institute	Aug 2017
Rice University	Mar 2017
University of Houston	Mar 2017
Fog networking for Networked drone cameras	
University of Pennsylvania	Jan 2018
George Washington University	Nov 2017
Guest Lecture in ELE536, Princeton University	Apr 2017
How fog Can Enhance Public Safety through Video Analytics and Other Approaches	
Fog World Congress	Oct 2017
Internet-of-Things (IoT): Edge Computing & Analytics	
IoT Workshop at USC	Mar 2016
Verizon 5G Innovation Forum	Apr 11, 2016
Vigil: A Wireless Video Surveillance System	
ACM MobiCom Conference	Sep 2015
Samsung Research, Silicon Valley	May 14, 2015
Microsoft Technology & Research TechFest	March 26, 2015
Data-driven approach to spectrum crunch	
IIT Delhi	Sep 2016
IEEE DySpan	Oct 2015
Limited Cooperation to enable Internet access for billions of devices	
University of California Irvine	March 2, 2015
Internet of Things: Dynamics, Evolution, Explosion	
IEEE Rising Stars Conference	Jan 3, 2015
Privacy-preserving Data-aggregation for Internet-of-things in Smart Grid	
Invited Guest lecture in Stanford seminar class EE392N	May 6, 2014
Enabling Gbps home-internet speeds on copper	
Microsoft Research, Redmond	March 2013
Limited Cooperation in Next-generation Broadband-access Networks	
Qualcomm Research, San Diego	January 2013
Broadcom Wi-Fi, San Jose	December 2012

LEADERSHIP EXPERIENCE & DIVERSITY OUTREACH

Celestini Project Director in India	2017

-Designed & led a multi-phase project to increase road safety on Indian roads using video analytics with 10 teams in collaboration with IIT Delhi & Marconi Society with sponsorship from Google

Co-organizer, *2nd MobiSys Womens Workshop*	June 2017
N2women fellowship co-chair	2017-18
Organizer, *Planning graduate school career workshop* at Princeton CS	Nov 2016
Guest speaker on *'Think Like a Programmer'* to middle school students	May 2015

-Designed a workshop to teach programming concepts on Nao robotic platform and kinect.

Co-chair, *IEEE Student Leadership Summit* at Microsoft Research	October 2014

- Designed a leadership training program for 34 IEEE student branch chairs from 14 universities across USA.

Women in Engineering (WiE) Chair of Stanford IEEE Student Branch	2010-2013
Financial Chair of Stanford Women In Electrical Engineering (WEE)	2011-2012

Initiated and led innovative projects, raised funds, and planned and executed more than twenty events to enhance the diversity of Stanford campus, especially women in engineering students. Selected contributions are below:

ADVISING EXPERIENCE

- Co-supervising a graduate student and two undergraduate students at Princeton University	October 2015–Present
- Co-supervised two high-school students on a drone game design at Microsoft Research	Summer 2014
- Co-supervised graduate student Tan Zhang on summer internship at Microsoft Research	Summer 2014
- Co-supervised undergraduate Shervin Mehryar on summer internship at University of Toronto	Summer 2011

TEACHING EXPERIENCE

CS244 Advanced Topics in Networking,Teaching Assistant *(Instructor: Prof. Nick McKeown)*	Winter 2013
EE384E Networked Wireless Systems,Teaching Assistant *(Instructor: Prof. S. Katti)*	Winter 2010
EE261 Fourier Transform & Its Applications,Teaching Assistant *(Instructor: Prof. B. Osgood)*	Fall 2010
EE179 Introduction to Communications,Teaching Assistant *(Instructor: Prof. A. Goldsmith)*	Winter 2011
EE378B Inference, Estimation, and Information Processing *(Instructor: Prof. A. Montanari)*	Spring 2013
EE479 Multiuser Digital Transmission Systems *(Instructor: Prof. J. M. Cioffi)*	Fall 2008
EE379C Advanced Digital Communication *(Instructor: Prof. J. M. Cioffi)*	Spring 2008
Science-in-Service Mentor, Haas Center for Public Services, Stanford	2009–2010