Xia Zhou

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Dartmouth College

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Education

University of California, Santa Barbara, Santa Barbara, CA — June 2013
Ph.D., Computer Science
Advisor: Prof. Haitao (Heather) Zheng

Peking University, Beijing, China — June 2007
Master of Science, Computer Science

Wuhan University, Wuhan, Hubei, China — June 2004
Bachelor of Science, Computer Science and Technology

Appointments

Dartmouth College, Hanover, NH — July 2018 – Present
Associate Professor of Computer Science
Co-director of the Dartmouth Networking and Ubiquitous Systems (DartNets) Laboratory

Dartmouth College, Hanover, NH — July 2013 – June 2018
Assistant Professor of Computer Science
Co-director of the Dartmouth Networking and Ubiquitous Systems (DartNets) Laboratory

University of Cambridge, Cambridge, UK — April 2017 – June 2017
Visiting Faculty

National Taiwan University, Taipei, China — December 2016 – February 2017
Visiting Faculty

UCSB LINK Laboratory, Santa Barbara, CA — September 2007 – June 2013
Research Assistant
Worked with Prof. Haitao (Heather) Zheng on dynamic spectrum distributions, wireless networking systems and measurements, and wireless data centers.

Microsoft Research, Redmond, WA — June 2011 – September 2011
Research Intern, Mobile Computing and Research Center
Worked with Dr. Ranveer Chandra on designing energy-efficient techniques for Wi-Fi connectivity. Performed detailed power measurements and built an emulator to validate the system design.

Technicolor Paris Research & Innovation Center, Paris, France — June 2010 – September 2010
Research Intern
Collaborated with Dr. Stratis Ioannidis and Dr. Laurent Massoulié to study content sharing across multiple BitTorrent swarms. Analyzed the stability and optimality properties, and designed content exchange algorithm to yield the optimal state.

Microsoft Research Asia, Beijing, China March 2006 – October 2006
Research Intern, Wireless and Networking Group
Designed CORA, Correlation-based Rate Adaptation, for the 802.11n networks. Developed a physical layer MIMO simulator and NS2 simulator to evaluate CORA.

Awards

Susan and Gib Myers 1964 Faculty Fellowship (2018)
Karen E. Wetterhahn Memorial Award for Distinguished Creative and Scholarly Achievement (2018)
N2Women: Rising Stars in Networking and Communication (2017)
Alfred P. Sloan Research Fellowship (2017)
Best Video Award, MobiCom (2016, 2015)
NSF CAREER Award (2016)
Honorable Mention Award, UbiComp (2015)
Hot Paper Award, HotWireless (2015)
Best Demo Award, MobiSys (2015)
Best Paper Award, VLCS (2014)
Best Paper Nominee Award, UbiComp (2014)
Google Faculty Research Award (2014)
Best Practical Paper Award, SIGMETRICS (2013)
Outstanding Dissertation Award in Computer Science, UCSB (2013)
Outstanding Publication Award in Computer Science, UCSB (2012, 2009)
Best Elevator Pitch Award in S3 Workshop, MobiHoc (2010)
Best Paper Award Finalist, MobiCom (2008)
US Anita Borg Scholarship Finalist (2009)
Grace Hopper Celebration of Women in Computing Scholarship (2009)
Chancellor's Fellowship, UCSB (2011, 2009, 2007)

Publications

[1] Tianxing Li and **Xia Zhou**. Battery-Free Eye Tracker on Glasses. *ACM Conference on Mobile Computing and Networking (MobiCom)*, October/November 2018.

[2] Yichen Li, Tianxing Li, Ruchir A. Patel, Xing-Dong Yang, and **Xia Zhou**. Self-Powered Gesture Recognition with Ambient Light. *ACM Symposium on User Interface Software and Technology (UIST)*, October 2018.

[3] Zhao Tian, Yu-Lin Wei, Wei-Nin Chang, Xi Xiong, Changxi Zheng, Hsin-Mu Tsai, Kate Ching-Ju Lin, and **Xia Zhou**. Augmenting Indoor Inertial Tracking with Polarized Light. *ACM International Conference on Mobile Systems, Applications, and Services (MobiSys)*, 2018.

[4] Alessandro Montanari, Zhao Tian, Elena Francu, Benjamin Lucas, Brian Jones, **Xia Zhou**, and Cecilia Mascolo. Measuring Interaction Proxemics with Wearable Light Tags. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), Volume 2 Issue 1, 2018. To be presented at ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)*, 2018.

[5] Xi Xiong, Justin Chan, Ethan Yu, Nisha Kumari, Ardalan Amiri Sani, Changxi Zheng, and **Xia Zhou**. Customizing Indoor Wireless Coverage via 3D-Fabricated Reflectors. *ACM International Conference on Systems for Energy-Efficient Built Environments (BuildSys)*, 2017.

[6] Tianxing Li, Qiang Liu, and **Xia Zhou**. Ultra-Low Power Gaze Tracking for Virtual Reality. *ACM Conference on Embedded Networked Sensor Systems (SenSys)*, 2017.
Best Paper Candidate. SIGMobile Research Highlights.

[7] Jun Gong, Yang Zhang, **Xia Zhou**, and Xing-Dong Yang. Pyro: Thumb-Tip Gesture Recognition Using Pyroelectric Infrared Sensing. *ACM Symposium on User Interface Software and Technology (UIST)*, 2017.

[8] Zhao Tian, Yu-Lin Wei, Xi Xiong, Wei-Nin Chang, Hsin-Mu Tsai, Kate Ching-Ju Lin, Changxi Zheng, and **Xia Zhou**. Position: Augmenting Inertial Tracking with Light. *ACM Workshop on Visible Light Communication Systems (VLCS)*, 2017.

[9] Tianxing Li, Xi Xiong, Yifei Xie, George Hito, Xing-Dong Yang, and **Xia Zhou**. Reconstructing Hand Poses Using Visible Light. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, Volume 1 Issue 3, 2017. Presented at *ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)*, 2017.

[10] Rui Wang, Fanglin Chen, Zhenyu Chen, Tianxing Li, Gabriella Harari, Stefanie Tignor, **Xia Zhou**, Dror Ben-Zeev, and Andrew T. Campbell. StudentLife: Using Smartphones to Assess Mental Health and Academic Performance of College Students. In *Mobile Health*, pp. 7-33. Springer, Cham, 2017.

[11] Ana Nika, Zhijing Li, Yanzi Zhu, Yibo Zhu, Ben Y. Zhao, **Xia Zhou**, and Haitao Zheng. Empirical Validation of Commodity Spectrum Monitoring. *ACM Conference on Embedded Networked Sensor Systems (SenSys)*, 2016.

[12] Zhao Tian, Kevin Wright, and **Xia Zhou**. The DarkLight Rises: Visible Light Communication in the Dark. *ACM Conference on Mobile Computing and Networking (MobiCom)*, 2016.
Best Video Award.

[13] Ethan Yu, Xi Xiong, and **Xia Zhou**. Automating 3D Wireless Measurements with Drones. *ACM International Workshop on Wireless Network Testbeds, Experimental evaluation & Characterization (WiNTECH)*, 2016.

[14] Tianxing Li, Qiang Liu, and **Xia Zhou**. Practical Human Sensing in the Light. *ACM International Conference on Mobile Systems, Applications, and Services (MobiSys)*, 2016.
SIGMobile Research Highlights.

[15] Zhao Tian, Kevin Wright, and **Xia Zhou**. Lighting Up the Internet of Things with DarkVLC. *The Workshop on Mobile Computing Systems and Applications (HotMobile)*, 2016.

[16] Sophia Haim, Rui Wang, Lorie Loeb, **Xia Zhou**, and Andrew T. Campbell. The Mobile Photographic Stress Meter (MPSM): A New Way to Measure Stress Using Images. *The International Workshop on Mobile Systems for Computational Social Science (MCSS)*, 2015.

[17] Rui Wang, **Xia Zhou**, and Andrew T. Campbell. Using Opportunistic Face Logging from Smartphone to Infer Mental Health: Challenges and Future Directions. *The International Workshop on Mobile Systems for Computational Social Science (MCSS)*, 2015.

[18] Justin Chan, Changxi Zheng, and **Xia Zhou**. 3D Printing Your Wireless Coverage. *ACM Workshop on Hot Topics in Wireless (HotWireless)*, 2015.
Hot Paper Award.

[19] Tianxing Li, Chuankai An, Zhao Tian, Andrew T. Campbell, and **Xia Zhou**. Human Sensing Using Visible Light Communication. *ACM Conference on Mobile Computing and Networking (MobiCom)*, 2015.
Best Video Award.

[20] Chuankai An, Tianxing Li, Zhao Tian, Andrew T. Campbell, and **Xia Zhou**. Visible Light Knows Who You Are. *ACM Workshop on Visible Light Communication Systems (VLCS)*, 2015.

[21] Tianxing Li, Chuankai An, Ranveer Chandra, Andrew T. Campbell, and **Xia Zhou**. Low-Power Pervasive Wi-Fi Connectivity Using WiScan. *ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)*, 2015.

[22] Rui Wang, Peilin Hao, Gabriella Harari, **Xia Zhou**, and Andrew T. Campbell. SmartGPA: How Smartphones Can Assess and Predict Academic Performance of College Students. *ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)*, 2015.
Honorable Mention Award.

[23] Tianxing Li, Chuankai An, Xinran Xiao, Andrew T. Campbell, and **Xia Zhou**. Real-Time Screen-Camera Communication Behind Any Scene. *ACM International Conference on Mobile Systems, Applications, and Services (MobiSys)*, 2015.
Best Demo Award.

[24] Ana Nika, Yibo Zhu, Ning Ding, Abhilash Jindal, Y. Charlie Hu, **Xia Zhou**, Ben Y. Zhao and Haitao Zheng. Energy and Performance of Smartphone Radio Bundling in Outdoor Environments. *The International World Wide Web Conference (WWW)*, 2015.

[25] Rui Wang, Fanglin Chen, Zhenyu Chen, Tianxing Li, Gabriella Harari, Stefanie Tignor, **Xia Zhou**, Dror Ben-Zeev, and Andrew T. Campbell. StudentLife: Assessing Behavioral Trends, Mental Well-being and Academic Performance of College Students using Smartphones. *ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp), 2014*.
Best Paper Nominee.

[26] **Xia Zhou** and Andrew T. Campbell. Visible Light Networking and Sensing. *ACM Workshop on Hot Topics in Wireless (HotWireless)*, 2014.

[27] Ana Nika, Zengbin Zhang, **Xia Zhou**, Ben Y. Zhao, and Haitao Zheng. Towards Commoditized Real-time Spectrum Monitoring. *ACM Workshop on Hot Topics in Wireless (HotWireless)*, 2014.

[28] Tianxing Li, Chuankai An, Andrew T. Campbell, and **Xia Zhou**. HiLight: Hiding Bits in Pixel Translucency Changes. *ACM Workshop on Visible Light Communication Systems (VLCS)*, 2014.
Best Paper Award.

[29] Yibo Zhu, **Xia Zhou**, Zengbin Zhang, Lin Zhou, Amin Vahdat, Ben Y. Zhao and Haitao Zheng. Cutting the Cord: a Robust Wireless Facilities Network for Data Centers. *ACM Conference on Mobile Computing and Networking (MobiCom), 2014*.

[30] Fanglin Chen, Rui Wang, **Xia Zhou**, and Andrew T. Campbell. My Smartphone Knows I am Hungry. *ACM the 1st workshop on Physical Analytics (WPA), 2014*.

[31] **Xia Zhou**, Zengbin Zhang, Gang Wang, Xiaoxiao Yu, Ben Y. Zhao, and Haitao Zheng. Practical Conflict Graphs in the Wild. *IEEE/ACM Transactions on Networking (ToN), 2014*.

[32] **Xia Zhou**, Zengbin Zhang, Gang Wang, Xiaoxiao Yu, Ben Y. Zhao, and Haitao Zheng. Practical Conflict Graphs for Dynamic Spectrum Distribution. *ACM Annual Conference of Special Interest Group on Performance Evaluation (SIGMETRICS), 2013.*
Best Practical Paper Award.

[33] **Xia Zhou**, Zengbin Zhang, Yibo Zhu, Yubo Li, Saipriya Kumar, Amin Vahdat, Ben Y. Zhao, and Haitao Zheng. Mirror Mirror on the Ceiling: Flexible Wireless Links for Data Centers. *ACM Annual Conference of the Special Interest Group on Data Communication (SIGCOMM), 2012.*

[34] Weile Zhang, **Xia Zhou**, Lei Yang, Zengbin Zhang, Ben Y. Zhao, and Haitao Zheng. 3D Beamforming for Wireless Data Centers. *ACM Workshop on Hot Topics in Networks (HotNets), 2011.*

[35] Zengbin Zhang, **Xia Zhou**, Weile Zhang, Yuanyang Zhang, Gang Wang, Ben Y. Zhao, and Haitao Zheng. I Am the Antenna: Accurate Outdoor AP Location using Smartphones. *ACM Conference on Mobile Computing and Networking (MobiCom), 2011.*

[36] **Xia Zhou**, Stratis Ioannidis, and Laurent Massoulié. On the Stability and Optimality of Universal Swarms. *ACM Annual Conference of Special Interest Group on Performance Evaluation (SIGMETRICS), 2011.*

[37] Lara Deek, **Xia Zhou**, Kevin Almeroth, and Haitao Zheng. To Preempt or Not: Tackling Bid and Time-based Cheating in Online Spectrum Auctions. *IEEE Conference on Computer Communications (INFOCOM), 2011.*

[38] **Xia Zhou** and Haitao Zheng. Breaking Bidder Collusion in Large-Scale Spectrum Auctions. *ACM Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc), 2010.*

[39] Lili Cao, Lei Yang, **Xia Zhou**, Zengbin Zhang, and Haitao Zheng. Optimus: SINR-Driven Spectrum Distribution via Constraint Transformation. *IEEE Symposium on New Frontier in Dynamic Spectrum Access Networks (DySPAN), 2010.*

[40] **Xia Zhou**, Heather Zheng, Maziar Nekovee, and Milind M. Buddhikot. Auction-based Spectrum Markets in Cognitive Radio Networks. Book chapter in *Cognitive Radio Communications and Networks*, Academic Press, 2009.

[41] **Xia Zhou** and Haitao Zheng. TRUST: A General Framework for Truthful Double Spectrum Auctions. *IEEE Conference on Computer Communications (INFOCOM), 2009.*

[42] **Xia Zhou**, Sorabh Gandhi, Subhash Suri, and Haitao Zheng. eBay in the Sky: Strategy-Proof Wireless Spectrum Auctions. *ACM Conference on Mobile Computing and Networking (MobiCom), 2008.*
Best Paper Award Finalist.

[43] **Xia Zhou**, Shravan Mettu, Heather Zheng, and Elizabeth M. Belding. Traffic-Driven Dynamic Spectrum Auctions. *IEEE Workshop on Networking Technologies for Software Defined Radio Networks (WSDR)*, 2008.

[44] **Xia Zhou**, Jun Zhao, and Guanghua Yang. Correlation based Rate Adaptation via Insights from Incomplete Observations in 802.11 Networks. *IEEE Conference on Communications (ICC), 2007.*

[45] Zhen Cao, **Xia Zhou**, Maoxing Xu, Zhong Chen, Jianbin Hu and Liyong Tang. Enhancing Base Station Security against DoS Attacks in Wireless Sensor Networks. *IEEE Conference on Wireless Communications Networking and Mobile Computing (WiCOM), 2006.*

[46] Zhen Cao, Jianbin Hu, Zhong Chen, Maoxing Xu, and **Xia Zhou**. Feedback: Towards Dynamic Behavior and Secure Routing for Wireless Sensor Networks. *IEEE Conference on Advanced Information Networking and Application (AINA), 2006.*

Professional Activities

Editorial Boards:

- ACM GetMobile Magazine, 2016 - 2018
- IEEE/ACM Transaction of Networking, 2016 - 2018

Technical Program Committees:

- ACM MobiCom 2019, 2018, 2017, 2016, 2015
- ACM HotMobile 2019, 2018.
- ACM IMC 2018
- ACM SeSys 2018
- ACM MobiSys 2018, 2017, 2016
- ACM Workshop on Visible Light Communication Systems (VLCS) 2017, 2015

- ACM Workshop on Physical Analytics (WPA) 2017
- ACM Workshop on Wearable Systems and Applications (WearSys) 2017, 2016
- WWW 2017
- ACM SIGMETRICS 2016, 2014
- ACM Workshop on Wireless Network Testbeds, Experimental Evaluation and Characterization 2016
- IEEE Conference on Computer Communications (INFOCOM) 2016
- ACM Workshop on Hot Topics in Wireless (HotWireless) 2016, 2015, 2014
- ACM SIGCOMM Poster/Demo/SRC Session 2014
- ACM SIGCOMM Workshop on All Things Cellular 2014
- IEEE CNS 2014
- ACM MobiHoc 2014
- IEEE SECON 2014
- ACM MobiCom Demos 2013
- PERFORMANCE Posters 2013

Conference Organization:

- Co-Chair of NSF NeTS Early Career Workshop 2017
- Co-Chair of ACM Workshop on Hot Topics in Wireless (HotWireless) 2017
- Co-Chair of Women's Workshop collocated with MobiSys, 2017, 2016
- Publicity Co-Chair of ACM MobiSys 2017
- Co-Chair of ACM Workshop on Physical Analytics (WPA) 2016
- Co-Chair of ACM Workshop on Visible Light Communication Systems (VLCS) 2016
- Demo/Poster/Video Co-Chair of ACM MobiSys 2016
- Publicity Chair of ACM HotWireless 2015
- Publicity Co-Chair of ACM MobiCom 2015
- Workshop Co-Chair of ACM MobiSys 2015, 2014
- Publicity Chair of ACM HotMobile 2015

Selected Press

[1] How to use a common household product to boost your WiFi signal. Newsweek, November 14, 2017. *http://www.newsweek.com/how-use-common-household-product-boost-your-wifi-signal-711539*

[2] Tinfoil hat for your router stops bad guys snooping your Wi-Fi. New Scientist, November 13, 2017. *https://www.newscientist.com/article/2153032-tinfoil-hat-for-your-router-stops-bad-guys-snooping-your-wi-fi/*

[3] You can use aluminum foil to strengthen your Wi-Fi signal. Popular Science, November 10, 2017. *https://www.popsci.com/aluminum-strengthen-wi-fi-signal*

[4] Researchers discover aluminum foil actually does improve your wireless speed, Techcrunch, November 8, 2017. *https://techcrunch.com/2017/11/08/researchers-discover-aluminum-foil-actually-does-improve-your-wireless-speed/*

[5] How Light Bulbs Watch You Buy Groceries. The Atlantic, November 18, 2016. *http://www.theatlantic.com/technology/archive/2016/11/how-light-bulbs-watch-you-buy-groceries/508061/*

[6] Communicating invisibly with dimmed down visible light. EE Times, October 20, 2016. *http://www.electronics-eetimes.com/news/communicating-invisibly-dimmed-down-visible-light*

[7] Visible light communication now possible in the dark. New Electronics, October 4, 2016. *http://www.newelectronics.co.uk/electronics-news/visible-light-communication-now-possible-in-the-dark/146497/*

[8] Smart Lighting Follows People. Communications of the ACM, August 16, 2016. *http://cacm.acm.org/news/205978-smart-lighting-follows-people/*

[9] Team uses smart light to track human behavior. Phys.ORG, June 15, 2016. *http://phys.org/news/2016-06-team-smart-track-human-behavior.html*

[10] Smart Light Captures Body in Motion. Biophotonics, October, 2015. *http://www.photonics.com/Article.aspx?AID=57820*

[11] Smart light lets you control your environment. Gizmag, August 19, 2015. *http://www.gizmag.com/smart-light/38872/*

[12] Team uses smart light, shadows to track human posture. Phys.ORG, August 11, 2015. *http://phys.org/news/2015-08-team-smart-shadows-track-human.html*

[13] Researchers Test First 'Smart Spaces' Using Light to Send Data. Communications of the ACM, November 17, 2014. *http://cacm.acm.org/news/180506-researchers-test-first-smart-spaces-using-light-to-send-data/fulltext*

[14] Dartmouth's Newest Networker Pursues Smartphone Stamina. April 4, 2014. Dartmouth Now. *http://now.dartmouth.edu/2014/04/dartmouths-newest-networker-pursues-smartphone-stamina/*

[15] Going wireless in the data center. ComputerWorld, May 7, 2012. *http://www.computerworld.com/s/article/9226889/Going_Wireless_in_the_Data_ Center*

[16] Bouncing Data. MIT Technology Review, February 21, 2012. *http://www.technologyreview.com/computing/39651*

[17] A Wireless Road Around Data Traffic Jams. New York Times, January 14, 2012. *http://www.nytimes.com/2012/01/15/business/a-wireless-way-around-data-center-traffic-jams.html*

[18] Bouncing signals off ceiling can rev up data centers. Phys.ORG, December 21, 2011. *http://phys.org/news/2011-12-ceiling-rev-centers.html*

[19] Bouncing Data Would Speed Up Data Centers. MIT Technology Review, December 20, 2011. *http://www.technologyreview.com/communications/39367/*

[20] Speeding up the Internet by bouncing data off the ceiling. ExtremeTech, December 20, 2011. *http://www.extremetech.com/extreme/109765-speeding-up-the-internet-by- bouncing-data-off-the-ceiling*

[21] Forget Ethernet, researchers want data centers to go wireless. GigaOM, December 20, 2011. *http://gigaom.com/cloud/forget-ethernet-researchers-want-data-centers-to-go-wireless*