

# Xinyu Zhang | Curriculum Vitae

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## Research Interest

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**Wireless Systems and Networking:** Designing and implementing next-generation wireless network architectures (based on millimeter-wave, large-scale distributed MIMO, and physical-layer informed protocols)

**Mobile and Ubiquitous Computing:** Designing and implementing ubiquitous sensing systems for Internet-of-Things applications (smart homes/buildings, wireless health, and 3D human-mobile interaction)

## Education

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### University of Michigan

*Ph.D., Computer Science and Engineering*

Thesis: MAC/PHY Co-Design of CSMA Wireless Networks Based on Software Radios

Advisor: Kang G. Shin

**Ann Arbor, US**

*2008–2012*

### University of Toronto

*M.S., Computer Engineering*

Thesis: Drift: A Highly Condensed Emulation Framework for Mobile Nodes in Server Clusters

Advisor: Baochun Li

**Toronto, Canada**

*2005–2007*

### Harbin Institute of Technology

*B.E., Electronic and Communications Engineering*

**Harbin, China**

*2001–2005*

## Employment

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### University of California San Diego

*Associate Professor*

**San Diego, CA**

*Sep. 2017–*

### University of Wisconsin-Madison

*Assistant Professor*

**Madison, WI**

*Aug. 2012–Aug. 2017*

### NEC Labs America

*Research Intern*

**Princeton, NJ**

*May 2011 – Dec. 2011*

### Microsoft Research Asia

*Research Intern*

**Beijing, China**

*May 2010 – Aug. 2010*

### University of Toronto

*Research Technician*

**Toronto, Canada**

*June 2007 – Aug. 2008*

## Honors and Awards

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**Feb. 2017** Google Faculty Research Award

**Jan. 2017** Dugald C. Jackson Faculty Scholar, UW-Madison

**Oct. 2016** Nominated for the University of Wisconsin Innovation Award (6 out of 400+ research teams)

**Jan. 2015** Madison Teaching and Learning Excellence (MTLE) faculty fellowship

**Jan. 2015** IEEE INFOCOM'15 distinguished TPC member award

**Mar. 2014** NSF CAREER Award

**2013, 2014** Hilldale Fellowship, University of Wisconsin-Madison

**Sep. 2011** ACM MobiCom Best Paper Award

**Apr. 2011** Chinese Government Award for Outstanding Overseas Students

**Sep. 2005** Graduate Fellowship, University of Toronto  
**July, 2005** Outstanding Graduate of the Heilongjiang Province, China  
**July, 2005** Outstanding Undergraduate Thesis Award, Harbin Institute of Technology

## Publications

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Underlined are my students. Updated information available at <http://xyzhang.ucsd.edu/publications.html>

### Conference Publications:

- [C1]** "Sensing Human-Object Interaction Through Passive WiFi Tags"  
Chuhan Gao, Yilong Li, **Xinyu Zhang**  
*USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, 2018  
(40 out of 252 submissions, acceptance ratio: 16%)
- [C2]** "Following the Shadow: Agile 3-D Beam-Steering for 60 GHz Wireless Networks"  
Anfu Zhou, Leilei Wu, Shaoqing Xu, Huadong Ma, Teng Wei, **Xinyu Zhang**  
*IEEE Conference on Computer Communications (INFOCOM)*, 2018  
(309 out of 1606 submissions, acceptance ratio: 19%)
- [C3]** "POI360: Panoramic Mobile Video Telephony over LTE Cellular Networks"  
Xiufeng Xie, **Xinyu Zhang**  
*ACM International Conference on emerging Networking EXperiments and Technologies (CoNEXT)*, 2017  
(40 out of 222 submissions, acceptance ratio: 18%)
- [C4]** "Automating Visual Privacy Protection Using a Smart LED"  
Chi Zhang, Shilin Zhu, **Xinyu Zhang**  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2017  
(35 out of 186 submissions, acceptance ratio: 19%)
- [C5]** "Pulsar: Towards Ubiquitous Visible Light Localization"  
Chi Zhang, **Xinyu Zhang**  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2017  
(35 out of 186 submissions, acceptance ratio: 19%)
- [C6]** "WiFi-Assisted 60 GHz Networks"  
Sanjib Sur, Ioannis Pefkianakis, **Xinyu Zhang**, Kyu-Han Kim  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2017  
(35 out of 186 submissions, acceptance ratio: 19%)
- [C7]** "Towards Seamless Coverage and Mobility Support for 60 GHz Millimeter-wave Networks"  
Teng Wei, **Xinyu Zhang**  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2017  
(35 out of 186 submissions, acceptance ratio: 19%)
- [C8]** "Accelerating Mobile Web Loading Using Cellular Link Information"  
Xiufeng Xie, **Xinyu Zhang**, Shilin Zhu  
*ACM International Conference on Mobile Systems, Applications, and Services (MobiSys)*, 2017  
(34 out of 188 submissions, acceptance ratio: 18%)
- [C9]** "Enabling High-Precision Visible Light Localization in Today's Buildings"  
Shilin Zhu, **Xinyu Zhang**  
*ACM International Conference on Mobile Systems, Applications, and Services (MobiSys)*, 2017  
(34 out of 188 submissions, acceptance ratio: 18%)
- [C10]** "Facilitating Robust 60 GHz Network Deployment By Sensing Ambient Reflectors"  
Teng Wei, Anfu Zhou, **Xinyu Zhang**  
*USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, 2017  
(46 out of 253 submissions, acceptance ratio: 18%)

- [C11] “Beam-forecast: Facilitating Mobile 60 GHz Networks via Model-driven Beam Steering”  
Anfu Zhou, **Xinyu Zhang**, Huadong Ma  
*IEEE Conference on Computer Communications (INFOCOM)*, 2017  
 (292 out of 1295 submissions, acceptance ratio: 21%)
- [C12] “LiTell: Robust Indoor Localization Using Unmodified Light Fixtures”  
Chi Zhang, **Xinyu Zhang**  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2016  
 (One of **top 3** papers pre-accepted to MobiCom’16, out of 226 submissions).
- [C13] “Gyro in the Air: Tracking 3D Orientation of Batteryless Internet-of-Things”  
Teng Wei, **Xinyu Zhang**  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2016  
 (One of **top 3** papers pre-accepted to MobiCom’16, out of 226 submissions).
- [C14] “OpenMili: A 60 GHz Software Radio Platform With a Reconfigurable Phased-Array Antenna”  
Jialiang Zhang, **Xinyu Zhang**, Pushkar Kulkarni, Parameswaran Ramanathan  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2016  
 (31 out of 226 submissions, acceptance ratio: 14%)
- [C15] “Practical MU-MIMO User Selection on 802.11ac Commodity Networks”  
Sanjib Sur, Ioannis Pefkianakis, **Xinyu Zhang**, Kyu-Han Kim  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2016  
 (31 out of 226 submissions, acceptance ratio: 14%)
- [C16] “BeamSpy: Enabling Robust 60 GHz Links Under Blockage”  
Sanjib Sur, **Xinyu Zhang**, Parameswaran Ramanathan, Ranveer Chandra  
*USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, 2016  
 (45 out of 225 submissions, acceptance ratio: 20%)
- [C17] “Random Access Signaling for Network MIMO Uplink”  
Teng Wei, **Xinyu Zhang**  
*IEEE Conference on Computer Communications (INFOCOM)*, 2016  
 (300 out of 1644 submissions, acceptance ratio: 18%)
- [C18] “Continuous and Fine-grained Breathing Volume Monitoring from Afar Using Wireless Signals”  
 Phuc Nguyen, **Xinyu Zhang**, Ann Halbower, Tam Vu  
*IEEE Conference on Computer Communications (INFOCOM)*, 2016  
 (300 out of 1644 submissions, acceptance ratio: 18%)
- [C19] “Scoping Environment for Robust 60 GHz Link Deployment”  
Sanjib Sur, **Xinyu Zhang**  
*IEEE Information Theory and Applications Workshop (ITA)*, 2016  
 (Invited Paper)
- [C20] “Towards a Visible Light Network Architecture for Continuous Communication and Localization”  
Jialiang Zhang, Chi Zhang, **Xinyu Zhang**, Suman Banerjee  
*ACM Workshop on Visible Light Communication Systems (VLCS)*, 2016
- [C21] “mTrack: High-Precision Passive Tracking Using Millimeter Wave Radios”  
Teng Wei, **Xinyu Zhang**  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2015  
 (38 out of 207 submissions, acceptance ratio: 18%)
- [C22] “Acoustic Eavesdropping through Wireless Vibrometry”  
Teng Wei, Shu Wang, Anfu Zhou, **Xinyu Zhang**  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2015  
 (One of **top 9** papers pre-accepted to MobiCom’15, out of 207 submissions).
- [C23] “Hekaton: Efficient and Practical Large-Scale MIMO”

Xiufeng Xie, Eugene Chai, **Xinyu Zhang**, Karthikeyan Sundaresan, Amir Khojastepour, Sampath Rangarajan  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2015  
(One of **top 9** papers pre-accepted to MobiCom'15, out of 207 submissions).

[C24] "piStream: Physical Layer Informed Adaptive Video Streaming Over LTE"  
Xiufeng Xie, **Xinyu Zhang**, Swarun Kumar, Li Erran Li  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2015  
(One of **top 4** MobiCom'15 papers **highlighted** in ACM GetMobile Journal;  
One of **top 9** papers pre-accepted to MobiCom'15, out of 207 submissions).

[C25] "Extending Mobile Interaction Through Near-Field Visible Light Sensing"  
Chi Zhang, Joshua Tabor, Jialiang Zhang, **Xinyu Zhang**  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2015  
(38 out of 207 submissions, acceptance ratio: 18%)

[C26] "Energy Efficient WiFi Display"  
Chi Zhang, **Xinyu Zhang**, Ranveer Chandra  
*ACM International Conference on Mobile Systems, Applications, and Services (MobiSys)*, 2015  
(29 out of 219 submissions, acceptance ratio: 13.2%)

[C27] "60 GHz Indoor Networking through Flexible Beams: A Link-Level Profiling"  
Sanjib Sur, Vignesh Venkateswaran, **Xinyu Zhang**, Parameswaran Ramanathan  
*ACM Conference on Measurement and Modeling of Computer Systems (SIGMETRICS)*, 2015  
(32 out of 239 submissions, acceptance ratio: 13.4%)

[C28] "Cross-Cell DoF Distribution: Combating Channel Hardening Effect in Multi-Cell MU-MIMO Networks"  
Xiufeng Xie, **Xinyu Zhang**, Eugene Chai  
*ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, 2015  
(37 out of 250 submissions, acceptance ratio: 14.8%)

[C29] "Signpost: Scalable MU-MIMO Signaling with Zero CSI Feedback"  
Anfu Zhou, Teng Wei, **Xinyu Zhang**, Min Liu, Zhongcheng Li  
*ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, 2015  
(37 out of 250 submissions, acceptance ratio: 14.8%)

[C30] "TRINITY: Tailoring Wireless Transmission Strategies to User Profiles in Enterprise Wireless Networks"  
Shailendra Singh, Karthik Sundaresan, Srikanth Krishnamurthy, **Xinyu Zhang**, Amir Khojastepour, Sampath Rangarajan  
*ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, 2015  
(37 out of 250 submissions, acceptance ratio: 14.8%)

[C31] "Bringing Multi-Antenna Gain to Energy-Constrained Wireless Devices"  
Sanjib Sur, Teng Wei, **Xinyu Zhang**  
*ACM/IEEE Conference on Information Processing in Sensor Networks (IPSN)*, 2015  
(27 out of 111 submissions, acceptance ratio: 24.3%)

[C32] "Bridging Link Power Asymmetry in Mobile Whitespace Networks"  
Sanjib Sur, **Xinyu Zhang**  
*IEEE Conference on Computer Communications (INFOCOM)*, 2015  
(316 out of 1640 submissions, acceptance ratio: 19.2%)

[C33] "Exploring Full-Duplex Gains in Multi-Cell Wireless Networks: A Spatial Stochastic Framework"  
Shu Wang, Vignesh Venkateswaran, **Xinyu Zhang**  
*IEEE Conference on Computer Communications (INFOCOM)*, 2015  
(316 out of 1640 submissions, acceptance ratio: 19.2%)

[C34] "Dancing with Light: Predictive In-frame Rate Selection for Visible Light Networks"  
Jialiang Zhang, **Xinyu Zhang**, Gang Wu  
*IEEE Conference on Computer Communications (INFOCOM)*, 2015  
(316 out of 1640 submissions, acceptance ratio: 19.2%)

- [C35] "Autodirective Audio Capturing through a Synchronized Smartphone Array"  
Sanjib Sur, Teng Wei, **Xinyu Zhang**  
*ACM International Conference on Mobile Systems, Applications, and Services (MobiSys)*, 2014  
(25 out of 185 submissions, acceptance ratio: 13.5%)
- [C36] "Ubiquitous Keyboard for Small Mobile Devices: Harnessing Multipath Fading for Fine-grained Keystroke Localization"  
Junjue Wang, Kaichen Zhao, **Xinyu Zhang**, Chunyi Peng  
*ACM International Conference on Mobile Systems, Applications, and Services (MobiSys)*, 2014  
(25 out of 185 submissions, acceptance ratio: 13.5%)
- [C37] "Leveraging Directional Antenna Capabilities for Fine-Grained Gesture Recognition"  
Pedro Melgarejo, **Xinyu Zhang**, Parameswaran Ramanathan, David Chu  
*ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)*, 2014  
(62 out of 454 submissions, acceptance ratio: 13.7%)
- [C38] "Semi-Synchronous Channel Access for Full-duplex Wireless Networks"  
Xiufeng Xie, **Xinyu Zhang**  
*IEEE International Conference on Network Protocols (ICNP)*, 2014  
(15 out of 79 submissions, acceptance ratio: 19%)
- [C39] "Does Full-duplex Double the Capacity of Wireless Networks?"  
Xiufeng Xie, **Xinyu Zhang**  
*IEEE Conference on Computer Communications (INFOCOM)*, 2014  
(320 out of 1645 submissions, acceptance ratio: 19.4%)
- [C40] "Scalable User Selection for MU-MIMO Networks"  
Xiufeng Xie, **Xinyu Zhang**  
*IEEE Conference on Computer Communications (INFOCOM)*, 2014  
(320 out of 1645 submissions, acceptance ratio: 19.4%)
- [C41] "Adaptive Feedback Compression for MIMO Networks"  
Xiufeng Xie, **Xinyu Zhang**, Karthikeyan Sundaresan  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2013  
(28 out of 208 submissions, acceptance ratio: 13.5%)
- [C42] "NEMOx: Scalable Network MIMO for Wireless Networks"  
**Xinyu Zhang**, Karthikeyan Sundaresan, Amir Khojastepour, Sampath Rangarajan, Kang G. Shin  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2013  
(28 out of 208 submissions, acceptance ratio: 13.5%)
- [C43] "Gap Sense: Lightweight Coordination of Heterogeneous Wireless Devices"  
**Xinyu Zhang**, Kang G. Shin  
*IEEE Conference on Computer Communications (INFOCOM)*, 2013  
(280 out of 1613 submissions, acceptance ratio: 17%)
- [C44] "E-MiLi: Energy-Minimizing Idle Listening in Wireless Networks"  
**Xinyu Zhang**, Kang G. Shin  
*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2011  
(29 out of 214 submissions, acceptance ratio: 14%)  
(**Best Paper Award, fast-tracked** to IEEE Transactions on Mobile Computing)
- [C45] "Enabling Coexistence of Heterogeneous Wireless Systems: Case for ZigBee and WiFi"  
**Xinyu Zhang**, Kang G. Shin  
*ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, 2011  
(25 out of 127 submissions, acceptance ratio: 20%)
- [C46] "Adaptive Subcarrier Nulling: Enabling Partial Spectrum Sharing in Wireless LANs"  
**Xinyu Zhang**, Kang G. Shin  
*IEEE International Conference on Network Protocols (ICNP)*, 2011

(31 out of 189 submissions, acceptance ratio: 16%)

**[C47]** "The Case for Antenna Cancellation for Scalable Full Duplex Wireless Communications"  
Mohammad A. Khojastepour, Karthikeyan Sundaresan, Sampath Rangarajan, **Xinyu Zhang**, Sanaz Barghi  
*ACM Workshop on Hot Topics in Networks (HotNets)*, 2011  
(24 out of 119 submissions, acceptance ratio: 20%)

**[C48]** "Chorus: Collision Resolution for Efficient Wireless Broadcast"  
**Xinyu Zhang**, Kang G. Shin  
*IEEE Conference on Computer Communications (INFOCOM)*, 2010  
(276 out of 1575 submissions, acceptance ratio: 18%)

**[C49]** "DAC: Distributed Asynchronous Cooperation for Wireless Relay Networks"  
**Xinyu Zhang**, Kang G. Shin  
*IEEE Conference on Computer Communications (INFOCOM)*, 2010  
(276 out of 1575 submissions, acceptance ratio: 18%)

**[C50]** "Spatio-Temporal Fusion for Small-scale Primary Detection in Cognitive Radio Networks"  
Alexander W. Min, **Xinyu Zhang**, Kang G. Shin  
*IEEE Conference on Computer Communications (INFOCOM, mini-conference)*, 2010  
(106 mini-conference papers out of 1575 submissions)

**[C51]** "On the Market Power of Network Coding in P2P Content Distribution Systems"  
**Xinyu Zhang**, Baochun Li  
*IEEE Conference on Computer Communications (INFOCOM)*, 2009  
(282 out of 1435 submissions, acceptance ratio: 20%)

**[C52]** "Dice: a Game Theoretic Framework for Wireless Multipath Network Coding"  
**Xinyu Zhang**, Baochun Li  
*ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, 2008  
(44 out of 300 submissions, acceptance ratio: 15%)

**[C53]** "Drift: A Highly Condensed Emulation Framework for Mobile Nodes in Server Clusters"  
**Xinyu Zhang**, Baochun Li  
*IEEE International Conference on Mobile Ad Hoc and Sensor Systems (MASS)*, 2008  
(26 regular plus 5 extended papers out of over 250 submissions, acceptance ratio: 12%)

**[C54]** "Optimized Multipath Network Coding in Lossy Wireless Networks"  
**Xinyu Zhang**, Baochun Li  
*International Conference on Distributed Computing Systems (ICDCS)*, 2008  
(102 out of 638 submissions, acceptance ratio: 16%)

**[C55]** "On the Benefits of Network Coding in Multi-Channel Wireless Networks"  
**Xinyu Zhang**, Baochun Li  
*IEEE Conference on Sensor, Mesh and Ad hoc Communications and Networks (SECON)*, 2008  
(64 out of 304 submissions, acceptance ratio: 21%)

**[C56]** "Network Coding Aware Dynamic Subcarrier Assignment in OFDMA Wireless Networks"  
**Xinyu Zhang**, Baochun Li  
*IEEE International Conference on Communications (ICC)*, 2008

#### Journal Publications:

**[J1]** "Fundamental Analysis of Full-duplex Gains in Wireless Networks"  
Shu Wang, Vignesh Venkateswaran, **Xinyu Zhang**  
*ACM/IEEE Transactions on Networking (ToN)*, 2016

**[J2]** "Fair and Efficient Coexistence of Heterogeneous Channel Widths in Next-Generation Wireless LANs"  
Sihui Han, **Xinyu Zhang**, Kang G. Shin  
*IEEE Transactions on Mobile Computing (TMC)*, 2016

- [J3] “Cooperation Without Synchronization: Practical Cooperative Relaying for Wireless Networks”  
**Xinyu Zhang**, Kang G. Shin  
*IEEE Transactions on Mobile Computing (TMC)*, 2015.
- [J4] “Cooperative Carrier Signaling: Harmonizing Coexisting WLAN and WPAN Devices”  
**Xinyu Zhang**, Kang G. Shin  
*ACM/IEEE Transactions on Networking (ToN)*, 2012.
- [J5] “E-MiLi: Energy-Minimizing Idle Listening in Wireless Networks”  
**Xinyu Zhang**, Kang G. Shin  
*IEEE Transactions on Mobile Computing (TMC)*, 2012
- [J6] “Delay-Optimal Broadcast for Multi-Hop Wireless Networks Using Self-Interference Cancellation”  
**Xinyu Zhang**, Kang G. Shin  
*IEEE Transactions on Mobile Computing (TMC)*, 2011.
- [J7] “On the Market Power of Network Coding in P2P Content Distribution Systems”  
**Xinyu Zhang**, Baochun Li  
*IEEE Transactions on Parallel and Distributed Systems (TPDS)*, 2011
- [J8] “Network Coding Aware Dynamic Subcarrier Assignment in OFDMA Wireless Networks”  
**Xinyu Zhang**, Baochun Li  
*IEEE Transactions on Vehicular Technology (TVT)*, 2011
- [J9] “Optimized Multipath Network Coding in Lossy Wireless Networks”  
**Xinyu Zhang**, Baochun Li  
*IEEE Journal on Selected Areas in Communications (JSAC)*, 2009
- [J10] “Detection of Small-scale Primary Users in Cognitive Radio Networks”  
Alexander W. Min, **Xinyu Zhang**, Kang G. Shin  
*IEEE Journal on Selected Areas in Communications (JSAC)*, 2011
- [J11] “Exploiting Spectrum Heterogeneity in Dynamic Spectrum Market”  
Alexander W. Min, **Xinyu Zhang**, Jaehyuk Choi, Kang G. Shin  
*IEEE Transactions on Mobile Computing (TMC)*, 2011

## Patents

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- [T1] “Spatial Location Indoors Using Standard Fluorescent Fixtures”  
Co-inventors: **Xinyu Zhang**, Chi Zhang  
U.S. Utility Patent No. 15/164195, 2016
- [T2] “Location-Aware Communication System Using Visible Light Transmission”  
Co-inventors: **Xinyu Zhang**, Suman Banerjee, Jialiang Zhang, Chi Zhang  
U.S. Utility Patent No. 14/980,103, 2015
- [T3] “Touch Surface for Mobile Devices Using Near Field Light Sensing”  
Co-inventors: **Xinyu Zhang**, Chi Zhang, Joshua Tabor, Jialiang Zhang  
U.S. Utility Patent No. 14/885490, filed on Oct. 2015
- [T4] “Radio Frequency Communication with Antenna Index Coding”  
Co-inventors: **Xinyu Zhang**, Sanjib Sur, Teng Wei  
U.S. Utility Patent No. 14/921346, filed on Oct. 2015
- [T5] “Lightweight Coordination of Heterogeneous Wireless Devices”  
Co-inventors: **Xinyu Zhang**, Kang G. Shin  
U.S. Provisional Patent No. 61/754,162, filed on Jan. 2013
- [T6] “Scalable network MIMO for wireless networks”  
Co-inventors: **Xinyu Zhang**, Mohammad A. Khojastepour, Karthikeyan Sundaresan, Sampath Rangarajan  
US Patent No. 13/755,485, filed on Mar. 2012

**[T7]** “Reducing Energy Consumption in Wireless Devices”

Co-inventors: **Xinyu Zhang**, Kang G. Shin

U.S. Provisional Patent No. 61/473,356, filed on Apr. 2011.

(Licensed to a major mobile device manufacturer and to be implemented in next-generation WiFi chipsets.)

## Extramural Grants

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- **Google Faculty Research Award, PI**, 06/2017 to 05/2018.
  - *Project title*: “Enabling Immersive Virtual-Reality Through 60 GHz Communications and Localization”
- **NSF-RCN, Co-PI**, 09/2016 to 08/2019.
  - *Project title*: “RCN: Millimeter-Wave Wireless Research: Hardware, Communication, Computation, and Networking”
  - *PI*: Prof. Akbar Sayeed (UW-Madison)
- **NSF-NeTS, PI**, 08/2016 to 08/2019.
  - *Project title*: “NeTS:Small:Collaborative Research:Fine-Grained Spectrum Access for Carrier-Aggregation Based Wireless”
  - *Collaborating PI*: Prof. Li Xiao (Michigan State University, leading institution)
- **NSF-CRI, Co-PI**, 09/2016 to 08/2020.
  - *Project title*: “II-NEW: WiNEST: A Prototype for a City-scale Living Laboratory for Wide-area Wireless Experimentation”
  - *PI*: Prof. Suman Banerjee (CS, UW-Madison), *co-PI*: Patrick Christian (UW Network Services)
- **HP Labs gift fund, PI**, 09/2015 to 12/2015.
  - *Project title*: “Multi-AP Management in Gbps 802.11ac Networks with Multi-user MIMO support”
- **NSF-NeTS, PI**, 10/2015 to 08/2020.
  - *Project title*: “NeTS: Large: Collaborative Research: GigaNets: A Path to Experimental Research in Millimeter Wave Networking”
  - *Collaborating PIs*: Prof. Upanmayu Madhow, Prof. Heather Zheng, Prof. Mark Rodwell, Prof. James Buckwalter (UCSB, leading institution), Prof. Amin Arbabian (Stanford)
- **NSF-CRI, PI**, 07/2015 to 06/2018.
  - *Project title*: “II-NEW: WiMi: A Reconfigurable Platform for Millimeter-Wave Wireless Networking and Sensing”
  - *Co-PIs*: Prof. Parameswaran Ramanathan, Prof. Daniel van der Weide (UW-Madison)
- **NSF-CRI, PI**, 07/2014 to 06/2015.
  - *Project title*: “CI-P: Reconfigurable Infrastructure for 60 GHz Wireless Communications, Networking and Sensing”
  - *Co-PI*: Prof. Parameswaran Ramanathan (UW-Madison)
- **NSF CAREER, PI**, 04/2014 to 03/2019.
  - *Project title*: “CAREER: Scalable Distributed MIMO: Towards Density-Proportional Capacity Scaling for Infrastructure Wireless Networks”
- **NSF-EARS, co-PI**, 01/2014 to 12/2017.
  - *Project title*: “EARS: TV Whitespace Networking for Vehicular Internet Services”
  - *PI*: Prof. Prof. Suman Banerjee (CS, UW-Madison), *co-PI*: Prof. Xiaojin Zhu (CS, UW-Madison)
- **NSF-NeTS, PI**, 10/2013 to 09/2016.
  - *Project title*: “NeTS: Small: Collaborative Research: Efficient Spectrum Access for Gbps WLANs in a Crowd of Legacy Networks”
  - *Collaboration PI*: Prof. Kang G. Shin, University of Michigan (leading institution)
- **Rockwell Collins research equipment grant, PI**, 08/2013 to 07/2014.
  - *Project title*: “Bridging the Knowledge Gap Between Wireless Communications and Computer Networks Using Software Radios”
  - *Co-PI*: Prof. Parameswaran Ramanathan (UW-Madison)
- **Texas Instruments equipment donation**, 02/2013.
- **Qualcomm equipment donation**, 10/2012.
- **Nokia equipment donation**, 09/2012.



## Intramural Grants

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- **Dugald C. Jackson Faculty Scholar**, 02/2017
- **Madison Teaching and Learning Excellence (MTLE) faculty fellowship**, 01/2015 to 12/2015.
- **UW Fall Research Competition, PI**, 07/2015 to 06/2016.  
*Project title: "Visible Light Networking with a Powerline Backhaul"*
- **UW Fall Research Competition, PI**, 07/2014 to 06/2015.  
*Project title: "Networking and Localization Through the 60 GHz Spectrum"*
- **Hilldale Fellowship, PI**, 06/2014 to 08/2014.  
*Project title: "D-Mart: A Resale Market for Cellular Bandwidth"*
- **Hilldale Fellowship, PI**, 06/2013 to 08/2013.  
*Project title: "Paper Keyboard for Smartphones"*

## Research Supervision

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### Ph.D. Students:

- Sanjib Sur (since Sep. 2013)
- Teng Wei (since Sep. 2013)
- Chi Zhang (since Sep. 2014)
- Chuhan Gao (since Sep. 2016)
- Shilin Zhu (since Sep. 2016)
- Xiufeng Xie (Sep. 2012 to Aug. 2017; now postdoc at University of Michigan)

### M.S. Students:

- Vignesh Venkateswaran (Jan. 2014 to May 2015)
- John Cabaj (Sep. 2013 to May 2015)
- Shu Wang (Jan. 2014 to May 2015)
- Joshua Tabor (Jan. 2014 to May 2015)
- Jialiang Zhang (Jan. 2015 to May 2016)
- Joshua Groen (Since Sep. 2015)
- Srujith Poondla (Since Sep. 2016)

### Undergraduate Students:

- Keren Zhu (summer'15, Hilldale Fellowship)
- Junjue Wang (summer'13, fall'13, spring'14, Hilldale Fellowship)
- Weiyi Li (summer'13)
- Zexi Liu (spring'13, spring'14, Hilldale Fellowship)

### Visiting Students/Scholars:

- Anfu Zhou (09/2014-10/2015, Chinese Academy of Sciences)
- Tong Meng (09/2014-08/2015, Shanghai Jiao Tong University, China)

## Teaching

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- ECE 537, Communication Networks, Spring'17.
- ECE 454, Mobile Computing Laboratory, Fall'16.
- ECE/CS 352, Digital System Fundamentals, Spring'16.
- ECE 454, Mobile Computing Laboratory, Fall'15.
- ECE/CS 352, Digital System Fundamentals, Spring'15.
- ECE/CS 707, Mobile and Wireless Networking, Fall'14.
- ECE 537, Communication Networks, Spring'14.
- ECE 454, Mobile Computing Laboratory, Fall'13.
- ECE/CS 707, Mobile and Wireless Networking, Spring'13.
- ECE 454, Mobile Computing Laboratory, Fall'12.

## Professional Service

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- Co-founder of *LiTell*, a startup company focusing on indoor positioning.
- Associate Editor, IEEE Transactions on Mobile Computing, 2017-now.
- Technical Program Chair for the 14th IEEE Conference on Sensing, Communication and Networking (SECON), 2017.
- Chair for the subcommittee on advanced wireless technologies, ACM/IEEE Design Automation Conference, 2017
- Program Chair of 3rd ACM Workshop on Hot Topics in Wireless (HotWireless), 2016
- Workshop co-chair of IEEE SECON'15
- Poster co-chair of ACM MobiCom, 2014.
- Serving on the TPC of the following conferences: ACM MobiCom'15 to '17; ACM HotWireless'14 to '17; ACM MobiHoc'14; IEEE INFOCOM'14 to '18; IEEE ICNP'15 to '17; IEEE SECON'13 to '17; ACM/IEEE IWQoS'13 to '17