# Xiufeng Xie

## Personal Information

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*Google Scholar*: https://scholar.google.com/citations?user=oGtTQfYAAAAJ

## Research Interests

**Video Analytics**: Combining deep neural networks, signal processing, and communication technologies to support video analytics at the intelligent edge.
**Wireless Networking**: Designing efficient and scalable networks for advanced radio communication technologies (MU-MIMO, massive MIMO, phased-array beamforming, full-duplex radio, LTE, mmWave).
**Mobile Computing**: Using wireless sensing and networking to facilitate cutting-edge mobile computing systems like mobile virtual reality and augmented reality.

## Education

**University of Wisconsin-Madison** 08/14/2017
*Ph.D. Computer Engineering (Advisor: Prof. Xinyu Zhang)*

**University of Electronic Science and Tech of China** 07/01/2011
*B.E. Communication Engineering*

## Work Experiences

**Hewlett Packard Labs** 07/23/2018 – present
*Research Engineer*
Duty: research on DNN-based video analytics at the intelligent edge. I have finished research projects on DNN-aware data compression for intelligent edge (published in MobiCom 2019) and memory-efficient DNN adaptation to handle unstable DNN input quality caused by ABR streaming and/or varying environment brightness (accepted by CVPR 2020).

**University of Michigan** 09/13/2017 – 07/11/2018
*Postdoc Research Fellow*,
Advisor: Prof. Kang G. Shin
Duty: research on using RF wireless signal for vehicular communication & sensing

**NEC Labs America** Summer 2014 & Summer 2015
*Research Intern*,
Mentor: Dr. Eugene Chai
Duty: research on analog-digital hybrid beamforming for Massive MIMO in 2014, and research on the coexistence between LTE-Unlicensed and WiFi in 2015 (filed two patents US9537587 and US9413474).

## Publications

**Conference Papers:**

· **[C15] Xiufeng Xie**, Kyu-Han Kim, *"Partial Weight Adaptation for Robust DNN Inference"*
(To appear) IEEE/CVF Conference on Computer Vision and Pattern Recognition(**CVPR**), 2020
Acceptance rate: 22% (1470 out of 6656 submissions).

· **[C14] Xiufeng Xie**, Kyu-Han Kim, *"Source Compression with Bounded DNN Perception Loss for IoT Edge Computer Vision"*
ACM International Conference on Mobile Computing and Networking(**MobiCom**), 2019
Acceptance rate: 16% (30 out of 186 submissions).

· **[C13]** Anfu Zhou, Huanhuan Zhang, Guangyuan Su, Leilei Wu, Ruoxuan Ma, Zhen Meng, Xinyu Zhang, **Xiufeng Xie**, Huadong Ma, Xiaojiang Chen, *"Learning to Coordinate Video Codec with Transport Protocol for Mobile Video Telephony"*
ACM International Conference on Mobile Computing and Networking(**MobiCom**), 2019
Acceptance rate: 16% (30 out of 186 submissions).

· **[C12]** Jing Wang, Yufan Zheng, Yunzhe Ni, Chenren Xu, Feng Qian, Wangyang Li, Wantong Jiang, Yihua Cheng, Zhuo Cheng, Yuanjie Li, **Xiufeng Xie**, Yi Sun, Zhongfeng Wang, *"An Active-Passive Measurement Study of TCP Performance over LTE on High-speed Rails"*
ACM International Conference on Mobile Computing and Networking(**MobiCom**), 2019
Acceptance rate: 16% (30 out of 186 submissions).

· **[C11] Xiufeng Xie**, Kang Shin, Hamed Yousefi, Suining He, *"Wireless CSI-Based Head Tracking in the Driver Seat"*
International Conference on Emerging Networking Experiments and Technologies (**CoNEXT**), 2018.
Acceptance rate: 17% (32 out of 185 submissions).

· **[C10] Xiufeng Xie**, Xinyu Zhang, *"POI360: Panoramic Mobile Video Telephony over LTE Cellular Networks"*
International Conference on Emerging Networking Experiments and Technologies (**CoNEXT**), 2017.
Acceptance rate: 18% (40 out of 222 submissions).

· **[C9] Xiufeng Xie**, Xinyu Zhang, Shilin Zhu, *"Accelerating Mobile Web Loading Using Cellular Link Information"*
ACM International Conference on Mobile Systems, Applications, and Services (**MobiSys**), 2017.
Acceptance rate: 18% (34 out of 188 submissions).

· **[C8] Xiufeng Xie**, Xinyu Zhang, Swarun Kumar, Li Erran Li, *"piStream: Physical Layer Informed Adaptive Video Streaming Over LTE"*
ACM International Conference on Mobile Computing and Networking (**MobiCom**), 2015.
**One of top 4 MobiCom'15 papers highlighted in ACM GetMobile Journal**
*Acceptance rate: 18% (38 out of 207 submissions).*

· **[C7] Xiufeng Xie**, Eugene Chai, Xinyu Zhang, Karthikeyan Sundaresan, Amir Khojastepour, Sampath Rangarajan, *"Hekaton: Efficient and Practical Large-Scale MIMO"*
ACM International Conference on Mobile Computing and Networking (**MobiCom**), 2015.
*One of top 9 papers pre-accepted to MobiCom'15 (with unanimous acceptance from all 6 reviewers)* .
Acceptance rate: 18% (38 out of 207 submissions)

· **[C6] Xiufeng Xie**, Xinyu Zhang, Eugene Chai, *"Cross-Cell DoF Distribution: Combating Channel Hardening Effect in Multi-Cell MU-MIMO Networks"*
ACM International Symposium on Mobile Ad Hoc Networking and Computing (**MobiHoc**), 2015.
Acceptance rate: 14.8% (37 out of 250 submissions).

· **[C5] Xiufeng Xie**, Xinyu Zhang, *"Semi-Synchronous Channel Access for Full-duplex Wireless Networks"*
IEEE International Conference on Network Protocols (**ICNP**), 2014.
Acceptance rate: 19% (15 out of 79 submissions).

· **[C4] Xiufeng Xie**, Xinyu Zhang, *"Does Full-duplex Double the Capacity of Wireless Networks?"*
IEEE Conference on Computer Communications (**INFOCOM**), 2014.
Acceptance rate: 19.4% (320 out of 1645 submissions).

· **[C3] Xiufeng Xie**, Xinyu Zhang, *"Scalable User Selection for MU-MIMO Networks"*
IEEE Conference on Computer Communications(**INFOCOM**), 2014.
Acceptance rate: 19.4% (320 out of 1645 submissions).

· **[C2] Xiufeng Xie**, Xinyu Zhang, Karthikeyan Sundaresan, *"Adaptive Feedback Compression for MIMO Networks"*
ACM International Conference on Mobile Computing and Networking(**MobiCom**), 2013.
Acceptance rate: 13.5% (28 out of 208 submissions).

· **[C1]** Jun Liu, **Xiufeng Xie**, *"Improved Iteration Strategy of Game-Based Channel Allocation Method for Cognitive Wireless Network"*
IEEE International Conference on Wireless Communications and Signal Processing (WCSP), 2011.

**Journal Papers:**

· **[J1] Xiufeng Xie**, Xinyu Zhang, Swarun Kumar, Li Erran Li, *"piStream: Physical Layer Informed Adaptive Video Streaming Over LTE"*
ACM GetMobile: Mobile Computing and Communications: Volume 20 Issue 2, 2016.

## Patents

*Application Number US 16/817251 (pending)*
Partial DNN Parameter Adaptation for Robust DNN Inference
**Xiufeng Xie**, Kyu-Han Kim, *2020*

*Application Number US 16/526335 (pending)*
Image Compression with Bounded Deep Neural Network Perception Loss
**Xiufeng Xie**, Kyu-Han Kim, *2019*

*Application Number US 16/527954 (pending)*
Deep Neural Network Color Space Optimization
**Xiufeng Xie**, Kyu-Han Kim, *2019*

*Patent Number US 9537587*
Efficient Large-Scale Multiple Input Multiple Output Communications
Eugene Chai, **Xiufeng Xie**, Mohammad A. Khojastepour, Karthikeyan Sundaresan, Sampath Rangarajan, *2017*

*Patent Number US 9413474*
Efficient Large-Scale Multiple Input Multiple Output Communications

Eugene Chai, **Xiufeng Xie**, Mohammad A. Khojastepour, Karthikeyan Sundaresan, Sampath Rangarajan, *2016*

## Poster

**Xiufeng Xie**, Xinyu Zhang, *"Accelerating Web Loading over Cellular Networks: A Cross-Layer Approach"* ACM S3, 2016.
**Best Poster Award**.

## Teaching Experiences

**Mobile Computing Laboratory**, *ECE 454*, University of Wisconsin-Madison. Fall 2013
Android Application Development.

## Services

**Conference/Workshop Program Committee:**
*TPC* (**MAVRIX'19)**.
*TPC* (**IEEE ICCCN'18)**.
*TPC* (**ACM S3'17)**.
*Web Chair* (**IEEE SECON'17)**.
*Web Chair* (**ACM Hotwireless'16)**.

**Reviewer:**

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|---|---|
| *IEEE Transactions on Mobile Computing* (**IEEE TMC)**. | 21 in 2015-20 |
| *IEEE/ACM Transactions on Networking* (**IEEE ToN)**. | 12 in 2016-20 |
| *Wireless Networks* (**WINE)**. | 3 in 2015-16 |
| *International Journal of Communication Systems* (**IJCS)**. | 1 in 2015 |
| *IEEE Transactions on Vehicular Technology* (**IEEE TVT)**. | 3 in 2015 |
| *IEEE Transactions on Wireless Communications* (**IEEE TWireless)**. | 2 in 2014-15 |
| *IEEE Communications Letters* (**IEEE CL)**. | 5 in 2015-18 |
| *IEEE International Conference on Computer Communications* (**INFOCOM)**. | 5 in 2018 |
| *ACM International Conference on Mobile Computing and Networking* (**MobiCom)**. | 3 in 2018 |
| *IEEE International Conference on Computer Communications and Networks* (**ICCCN)**. | 3 in 2018 |
| *Sensors*. | 6 in 2018-20 |
| *IEEE Access*. | 1 in 2018 |
| *Applied Science*. | 2 in 2018 |
| *ACM Transactions on Sensor Networks* (**ACM TOSN)**. | 2 in 2018 |
| *IEEE Globecom 17*. | 1 in 2017 |
| *IEEE/ACM International Symposium on Quality of Service* (**IEEE/ACM IWQoS)**. | 1 in 2017 |
| *IEEE Wireless Communications and Networking Conference* (**IEEE WCNC 2017)**. | 1 in 2016 |
| *IEEE JSAC Special Issue on Human-In-The-Loop Mobile Networks* (**IEEE JSAC)**. | 2 in 2016-18 |

## Awards

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| **Patent Award (US 16/526335 & US 16/527954)**, *Hewlett Packard Labs*. | 2019 |
| **Best Poster Award**, *ACM S3'16*. | 2016 |
| **Patent Award (US 9537587 & US 9413474)**, *NEC Labs America*. | 2015 |
| **Travel Grant Award**, *ICNP'14*. | 2014 |
| **Outstanding Graduate**, *University of Electronic Science and Tech of China*. | 2011 |
| **Outstanding Bachelor Thesis**, *University of Electronic Science and Tech of China*. | 2011 |
| **National Scholarship**, *Ministry of Education, China*. | 2007-2010 |

## References


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