

# Mingyue Ji

## Associate Professor

Director of Computing, Caching, and Communication  
(C<sup>3</sup>) research group  
Department of Electrical and Computer Engineering

## Adjunct Associate Professor

School of Computing (Computer Science)  
University of Utah  
Salt Lake City, UT, 84112

**Phone:** (213) 880-0553

**Email:** [mingyue.ji@utah.edu](mailto:mingyue.ji@utah.edu)

**Website:**

<http://www.ece.utah.edu/~u6007330/>

## EDUCATION

*Ph.D.*, Electrical Engineering, Aug. 2010 to Aug. 2015  
Minor, Mathematics,  
Ming Hsieh Department of Electrical and Computer Engineering,  
Viterbi School of Engineering,  
University of Southern California (USC), Los Angeles, USA  
THESIS - Fundamental Limits of Caching Networks: *Turning Memory into Bandwidth*  
Adviser: Dr. Giuseppe Caire  
Co-Adviser: Dr. Andreas F. Molisch

*Master of Science*, Electrical Engineering Specialized in Networking, Sep. 2008 to Aug. 2010  
Department of Electrical Engineering,  
Jack Baskin School of Engineering,  
University of California, Santa Cruz (UCSC), USA  
THESIS - Capacity of Wireless Ad Hoc Networks with Heterogeneous Properties

*Master of Science*, Electrical Engineering Specialized in Wireless Systems, Aug. 2006 to May 2008  
School of Electrical Engineering,  
Royal Institute of Technology (KTH), Stockholm, Sweden  
THESIS - Realistic System Evaluation and Design of MIMO Pre-coding Schemes

*Bachelor of Engineering*, Telecommunication Engineering Sep. 2002 to Jul. 2006  
School of Telecommunication Engineering,  
Beijing University of Posts and Telecommunications (BUPT), Beijing, China  
THESIS - Polarization Control Algorithms in Optical Fiber Sensor Systems

## PROFESSIONAL EXPERIENCE

*University of Utah, Salt Lake City, UT*  
Position: Associate Professor (tenured) July 2022 – present  
Position: Assistant Professor July 2016 – June 2022

*Broadcom Limited, San Diego, CA*  
Position: Scientist, Staff II System Design August 2015 – June 2016

## HONORS AND AWARDS

- Listed among top 2% of scientists for 2021 Aug. 2022
- The 2022 Outstanding ECE Teaching Award of the University of Utah Aug. 2022
- Top 15% Undergraduate Teachers Award of the College of Engineering at the University of Utah Fall 2021 Aug. 2022
- NSF CAREER Award Jan. 2022
- Best Paper Award for the Communications Theory Symposium at IEEE Globecom 2021 Dec. 2021
- Listed among top 2% of scientists for 2020 Aug. 2021
- Top 15% Undergraduate Teachers Award of the College of Engineering at the University of Utah Fall 2020 Aug. 2021
- IEEE Communications Society Leonard G. Abraham Prize for the best IEEE JSAC paper May 2019
- Exemplary reviewer for IEEE Transactions on Communications for 2018 Feb. 2019
- Exemplary reviewer for IEEE Transactions on Communications for 2017 Feb. 2018
- Exemplary reviewer for IEEE Transactions on Communications for 2016 Feb. 2017
- Best Paper Award for the Ad-hoc and Sensor Networking Symposium at IEEE ICC 2015 Jun. 2015
- Annenberg Fellowship Travel Award of USC Oct. 2012
- Annenberg Fellowship of USC Aug. 2010 to Aug. 2014
- Best Student Paper award for IEEE EW 2010 conference Apr. 2010
- Student Travel Grant Award for IEEE INFOCOM 2010 Mar. 2010
- Best Thesis Award of Bachelor Degree Thesis of BUPT Jun. 2006

## RESEARCH INTERESTS

- **Summary:**

The main methodology in my research group is the joint design of **Computing, Communication and Caching (C<sup>3</sup>)** over networked systems with applications to wireless communication and networking, cloud/edge computing, artificial intelligence, distributed storage, (statistical) signal processing and caching/content delivery network. My teaching and research videos can be found at our YouTube Channel: <https://www.youtube.com/channel/UC850qek4kWgZJ0d3SIcAhaA>. My current research topics are as follows:

- Beyond 5G wireless communications and networking (funded by NSF and INL)
- Federated and distributed machine learning (in collaboration with IBM research lab and Army Research Lab and funded by NSF CAREER)
- Elastic computing over edge and cloud computing systems (funded by startup fundings, NSF CAREER and University of Utah Seed Grant)
- Design and implementation of wireless low power agriculture sensor networks using ZigBee and LoRa (funded by DOE ARPA-E program)
- Wireless communications and networking using machine learning (funded by NSF and INL)
- Design machine learning algorithms for wireless communications (funded by INL and L3Harris)
- Privacy and security in machine learning, and distributed and cloud computing (funded by NSF)

- Design next generation V2X wireless networks and edge computing (funded by DOE)
- Design and implementation of Wireless Named Data Networking (NDN) using LoRa (funded by L3Harris)
- Fundamental limits, practical algorithm designs and implementations of wireless and wireline distributed computing networks (e.g., edge computing, Internet of Things (IoT), cloud computing) (funded by DOT NITC and NSF)
- Fundamental limits, code design and algorithms of caching networks with various structures, channel models and communication schemes (funded by NSF)

## RESEARCH GRANTS

**Total personal share:** ~\$1.9M.

### Current:

1. National Science Foundation (NSF), U.S.-Ireland R&D Partnership: Smart Radio Environments with Reconfigurable Intelligent Surfaces – Communications Through Blockage in Millimeter-wave Systems (REFLECT-MMWAVE), 10/01/2022 to 09/30/2025, Role: Co-PI (\$200,000); PI: Rong-Rong Chen; Total grant: \$400,000.
2. National Science Foundation (NSF), Collaborative Research: SWIFT: Decentralized Intelligent Spectrum Sharing in UAV Networks (DISH-uNET) via Hardware-software Co-design, 10/01/2022 to 09/30/2025, Role: PI (\$140,000); Co-PIs: Cuixi Yu, Rong-Rong Chen, Zhangyu Guan (University at Buffalo); Total grant: \$750,000.
3. INL LDRD Artificial-Intelligence-based Confidentiality, Integrity, and Availability of Wirelessly Transmitted Data in Nuclear Industry; 10/01/2022 to 09/30/2024; Role: PI (\$120,939); Co-PI: Sneha Kumar Kasera; Total grant: \$176,000.
4. National Science Foundation (NSF), CAREER: Heterogeneous Elastic Computing over the Cloud - from Theory to Practice, 02/01/2021 to 01/31/2026; Role: PI (single); Total grant: \$544,535 (including CloudBank funds).
5. DOE, Low-cost Infrastructure-based Enablers for Cooperative Driving Automation: Visual-Enhanced Cooperative Traffic Operations (VECTOR) System; 07/01/2021 to 12/31/2024; Role: Co-PI (\$180,000) PI: Xianfeng Yang, Co-PIs: Mingxi Liu, Ken Stevens; Total grant of the University of Utah: \$1,003,099 without cost share.
6. ARPA-E, OPEN+ Sensors for Bioenergy and Agriculture Cohort: Low-Cost Wireless Chemical Sensor Networks for Early Detection of Invasive Parasitics in Biofuel Crops; 04/01/2019 to 12/31/2022; Role: Co-PI (\$140,000); PI: Hanseup Kim, Co-PIs: Carlos Mastrangelo, Ling Zang, James Schnable; Total grant: \$2,164,314.

### Completed:

1. National Science Foundation (NSF), SpecEES: Dynamic Space Frequency Multiplexing - A New Paradigm for Filterbank Multicarrier Spectrum Access, 09/01/2018 to 08/31/2022; Role: Co-PI (\$152,698.00); PI: Behrouz Farhang-Boroujeny, Co-PIs: Rong-Rong Chen, Sneha Kumar Kasera; Total grant: \$674,558.
2. National Science Foundation (NSF), CIF: Small: Fundamental Limits of Caching Networks with General Topologies, 10/01/2018 to 09/30/2022; Role: PI (\$179,545). Co-PI: Rong-Rong Chen; Total grant: \$300,000.

3. INL LDRD Wireless Security Institute, Secure mmWave Spectrum Sharing with Autonomous Beam Scheduling; 11/01/2019 to 09/30/2021; Role: Co-PI (\$177,868); PI: Sneha Kumar Kasera; Total grant: \$370,000.
4. National Institute for Transportation and Communities, Connected Vehicle System Design for Signalized Arterials, 09/01/2018 to 11/30/2019; Role: Co-PI (\$41,714.59), PI: Xianfeng (Terry) Yang; Total grant: \$89,513.
5. University of Utah Research Foundation, Coded Machine Learning in Large Scale Systems under General Topologies, 07/01/2018 to 06/30/2019, Role: PI (single); \$20,000.

### INVITED TALKS AND TUTORIALS

1. “A Non-cooperative Distributed Beam Scheduling Framework for mmWave Cellular Networks,” 3rd Buffalo Day for 5G and Wireless Internet of Things on November 19, 2021.
2. “Recent Results on Cache-aided Multiuser Private Information Retrieval and Open Problems,” Caching, Computing and Delivery in Wireless Networks (CCDWN) Workshop as part of WiOpt 2021 on October 18, 2021.
3. Tutorial on “Distributed Function Retrieval: a Storage and Privacy Prospective” with Prof. Daniela Tuninetti and Prof. Hua Sun at the 2021 IEEE International Symposium on Information Theory (ISIT 2021), held (virtually) in Melbourne Australia in July 2021. The video can be found at <https://youtu.be/6AoP-6qKb78>.
4. “On Optimal Load-Memory Tradeoff of Cache-Aided Scalar Linear Function Retrieval,” ITA, San Diego, CA, Feb. 2020.
5. “Theoretical Foundation and Coding Designs in Distributed Computation, Private Information Retrieval and Distributed Machine Learning,” Data Science Seminar, School of Computing, University of Utah, Mar. 2019
6. “New Combinatorial Designs for Coded Distributed Computing,” ITA, San Diego, CA, Feb. 2019
7. “A New Combinatorial Design of Coded Distributed Computing,” ITA, San Diego, CA, Feb. 2018
8. “State-of-the-art in Cache-aided Combination Networks,” IEEE Asilomar Conference, Pacific Grove, CA, Oct. 2017
9. “Distributed device-to-device caching networks: fundamental understandings under simple models,” ITA, San Diego, CA, Feb. 2017
10. “Wireless Edge Caching: Fundamental Limits and Practical Challenges,” Samsung Semiconductors, Modem Lab, Jun. 2015
11. “Turning Memory into Bandwidth via Wireless Edge Caching: Fundamental Limits and Practical Challenges,” University of Southern California (USC), CA, Feb. 2015
12. “On the Optimal Rate of Caching and Coded Multicasting with Random Demand,” ITA Graduation Day Presentation, La Jolla, CA, Feb. 2015
13. “Turning Memory into Bandwidth via Wireless Caching: Fundamental Limits and Practical Challenges,” Bell Labs, Murray Hill, NJ, Dec. 2014
14. “Turning Memory into Bandwidth via Wireless Caching: Fundamental Limits and Practical Challenges,” New York University (NYU), NY, Dec. 2014
15. “Turning Memory into Bandwidth via Wireless Caching: Fundamental Limits and Practical Challenges,” New Jersey Institute of Technology (NJIT), NJ, Dec. 2014
16. “Fundamental Limits of Distributed Caching in Wireless Networks,” Stanford University, CA, Sep. 2013

**PUBLICATIONS**  
(Names of my students are underlined)

Google Scholar Profile: <http://scholar.google.com/citations?user=rWlfxVgAAAAJ&hl=en>  
(3600+ citations, h-index: 24)

**Journals:**

*Under review:*

- R1. Ali Gholami, Kai Wan, Hua Sun, Mingyue Ji and Giuseppe Caire, “Coded Caching With Private Demands and Caches,” submitted to IEEE Transactions on Information Theory, 2022 (**first round**).
- R2. Kai Wan, Daniela Tuninetti, Mingyue Ji and Giuseppe Caire, “On Coded Caching with Correlated Files,” submitted to IEEE Transactions on Information Theory, 2022 (**second round**).
- R3. Kai Wan, Xin Yao, Hua Sun, Mingyue Ji and Giuseppe Caire, “Information Theoretic Secure Aggregation with Uncoded Groupwise Keys,” submitted to IEEE Transactions on Information Theory, 2022 (**first round**).

*Published or Accepted:*

- J1. Won Joon Yun, Yunseok Kwak, Hankyul Baek, Soyi Jung, Mingyue Ji, Mehdi Bennis, Jihong Park and Joongheon Kim, “SlimFL: Federated Learning with Superposition Coding over Slimmable Neural Networks,” in IEEE Transactions on Networking, 2022.
- J2. Kai Wan, Hua Sun, Mingyue Ji, Daniela Tuninetti and Giuseppe Caire, “On the Fundamental Limits of Device-to-Device Private Caching Under Uncoded Cache Placement and User Collusion,” in IEEE Transactions on Information Theory, vol. 68, no. 9, pp. 5701-5729, Sept. 2022.
- J3. Shamik Sarkar, Xiang Zhang, Arupjyoti Bhuyan, Mingyue Ji and Sneha Kumar Kasera, “Uncoordinated Spectrum Sharing in Millimeter Wave Networks Using Carrier Sensing,” in IEEE Transactions on Wireless Communications, 2022 (early access).
- J4. Kai Wan, Hua Sun, Mingyue Ji, Daniela Tuninetti and Giuseppe Caire, “Cache-Aided Matrix Multiplication Retrieval,” in IEEE Transactions on Information Theory, vol. 68, no. 7, pp. 4301-4319, July 2022.
- J5. Ming-Chun Lee, Andreas F. Molisch and Mingyue Ji, “Throughput-Outage Scaling Behaviors for Wireless Single-Hop D2D Caching Networks With Physical Model,” in IEEE Transaction on Wireless Communications, vol. 21, no. 8, pp. 6523-6538, Aug. 2022.
- J6. Kai Wan, Hua Sun, Mingyue Ji and Giuseppe Caire, “On Secure Distributed Linearly Separable Computation,” in IEEE Journal on Selected Areas in Communications, vol. 40, no. 3, pp. 912-926, March 2022.
- J7. Kai Wan, Hua Sun, Mingyue Ji and Giuseppe Caire, “Distributed Linearly Separable Computation,” in IEEE Transactions on Information Theory, vol. 68, no. 2, pp. 1259-1278, Feb. 2022.
- J8. Kai Wan, Daniela Tuninetti, Mingyue Ji and Pablo Piantanida, “Combination Networks with End-user-caches: Novel Achievable and Converse Bounds under Uncoded Cache Placement,” in IEEE Transactions on Information Theory, vol. 68, no. 2, pp. 806-827, Feb. 2022.
- J9. Kai Wan, Hua Sun, Mingyue Ji and Giuseppe Caire, “On the Tradeoff Between Computation and Communication Costs for Distributed Linearly Separable Computation,” in IEEE Transactions on Communications, vol. 69, no. 11, pp. 7390-7405, Nov. 2021.
- J10. Nicholas Woolsey, Xingyue Wang, Rong-Rong Chen and Mingyue Ji, “FLCD: A Flexible Low Complexity Design of Coded Distributed Computing,” in IEEE Transactions on Cloud Computing, 2021 (early access).
- J11. Xiang Zhang, Shamik Sarkar, Arupjyoti Bhuyan, Sneha Kumar Kasera, Mingyue Ji, “A Non-cooperative Game-based Distributed Beam Scheduling for 5G mm-Wave Networks,” in IEEE Transactions on Wireless Communications, vol. 21, no. 1, pp. 489-504, Jan. 2022.
- J12. Xiang Zhang, Kai Wan, Hua Sun, Mingyue Ji and Giuseppe Caire, “On the Fundamental Limits of Cache-aided Multiuser Private Information Retrieval,” in IEEE Transactions on Communications, vol. 69, no. 9, pp. 5828-5842, Sept. 2021.

- J13. Nicholas Woolsey, Rong-Rong Chen and Mingyue Ji, “A Combinatorial Design for Cascaded Coded Distributed Computing on General Networks,” in *IEEE Transactions on Communications*, vol. 69, no. 9, pp. 5686-5700, Sept. 2021.
- J14. Nicholas Woolsey, Rong-Rong Chen and Mingyue Ji, “A New Combinatorial Coded Design for Heterogeneous Distributed Computing,” in *IEEE Transactions on Communications*, vol. 69, no. 9, pp. 5672-5685, Sept. 2021.
- J15. Kai Wan, Hua Sun, Mingyue Ji, Daniela Tuninetti and Giuseppe Caire, “On Optimal Load-Memory Tradeoff of Cache-Aided Scalar Linear Function Retrieval,” in *IEEE Transactions on Information Theory*, vol. 67, no. 6, pp. 4001-4018, June 2021.
- J16. Xiang Zhang, Nicholas Woolsey and Mingyue Ji, “Cache-aided Interference Management using Hypercube Combinatorial Cache Design with Reduced Subpacketizations and Order Optimal Sum-Degrees of Freedom,” in *Transactions on Wireless Communications*, 2021 (early access).
- J17. Nicholas Woolsey, Rong-Rong Chen and Mingyue Ji, “Coded Elastic Computing on Machines with Heterogeneous Storage and Computation Speed,” in *IEEE Transactions on Communications*, vol. 69, no. 5, pp. 2894-2908, May 2021.
- J18. Kai Wan, Daniela Tuninetti, Mingyue Ji and Giuseppe Caire, “On the Fundamental Limits of Fog-RAN Cache-aided Networks with Downlink and Sidelink Communications,” in *IEEE Transactions on Information Theory*, vol. 67, no. 4, pp. 2353-2378, April 2021.
- J19. Kai Wan, Hua Sun, Mingyue Ji, Daniela Tuninetti and Giuseppe Caire, “Cache-aided General Linear Function Retrieval,” in *Entropy*, 2021, 23, 25. **(Invited, feature paper)**.
- J20. Ming-Chun Lee, Mingyue Ji and Andreas Molisch, “Optimal Throughput-Outage Analysis of Cache-Aided Wireless Multi-Hop D2D Networks,” in *IEEE Transactions on Wireless Communications*, vol. 69, no. 4, pp. 2489-2504, April 2021.
- J21. Nicholas Woolsey, Rong-Rong Chen and Mingyue Ji, “Uncoded Placement With Linear Sub-Messages for Private Information Retrieval From Storage Constrained Databases,” in *IEEE Transactions on Communications*, vol. 68, no. 10, pp. 6039-6053, Oct. 2020.
- J22. Nicholas Woolsey, Rong-Rong Chen and Mingyue Ji, “Towards Finite File Packetizations in Wireless Device-to-Device Caching Networks,” in *IEEE Transactions on Communication Theory*, , vol. 68, no. 9, pp. 5283-5298, Sept. 2020.
- J23. Kai Wan, Daniela Tuninetti, Mingyue Ji, Giuseppe Caire and Pablo Piantanida, “Fundamental Limits of Decentralized Data Shuffling,” in *IEEE Transactions on Information Theory*, vol. 66, no. 6, pp. 3616-3637, June 2020.
- J24. Minseok Choi, Joongheon Kim, Albert No and Mingyue Ji, “Markov Decision Policies for Dynamic Video Delivery in Wireless Caching Networks,” in *IEEE Transactions on Wireless Communications*, vol. 18, no. 12, pp. 5705-5718, Dec. 2019.
- J25. Ming-Chun Lee, Mingyue Ji, Andreas F Molisch and Nishanth Sastry, “Throughput-Outage Analysis and Evaluation of Cache-Aided D2D Networks with Measured Popularity Distributions,” in *IEEE Transaction on Wireless Communications*, vol. 18, no. 11, pp. 5316-5332, Nov. 2019.
- J26. Giuseppe Vettigli, Mingyue Ji, Karthikeyan Shanmugam, Jaime Lorca, Antonia M. Tulino and Giuseppe Ciare, “An efficient multiple-groupcast coded multicasting scheme for finite fractional caching,” in *Entropy*, vol. 21, no. 3, p. 324, March 2019 **(Invited)**.
- J27. Mingyue Ji, Antonia M. Tulino, Jaime Llorca and Giuseppe Caire, “Order-Optimal Rate of Caching and Coded Multicasting With Random Demands,” in *IEEE Transactions on Information Theory*, vol. 63, no. 6, pp. 3923-3949, June 2017.
- J28. Sang-Woon Jeon, Song-Nam Hong, Mingyue Ji, Giuseppe Caire and Andreas F. Molisch, “Wireless Multihop Device-to-Device Caching Networks,” in *IEEE Transactions on Information Theory*, vol. 63, no. 3, pp. 1662-1676, March 2017.
- J29. Karthikeyan Shanmugam, Mingyue Ji, Antonia M. Tulino, Jaime Llorca and Alexandros G. Dimakis, “Finite-Length Analysis of Caching-Aided Coded Multicasting,” in *IEEE Transactions on Information Theory*, vol. 62, no. 10, pp. 5524-5537, Oct. 2016.
- J30. Angela Sara Cacciapuoti, Marcello Caleffi, Mingyue Ji, Jaime Llorca and Antonia Tulino, “Speeding Up Future Video Distribution via Channel-Aware Caching-Aided Coded Multicast,” in *IEEE Journal on Selected Areas in Communications*, vol. 34, no. 8, pp. 2207-2218, Aug. 2016.

- J31. Mingyue Ji, Giuseppe Caire and Andreas F. Molisch, “Fundamental Limits of Caching in Wireless D2D Networks,” in *Information Theory, IEEE Transactions on*, vol.62, no.2, pp.849-869, Feb. 2016.
- J32. Mingyue Ji, Giuseppe Caire and Andreas F. Molisch, “Wireless Device-to-Device Caching Networks: Basic Principles and System Performance,” in *Selected Areas in Communications, IEEE Journal on*, vol.34, no.1, pp.176-189, Jan. 2016 (**Received Leonard G. Abraham Prize Paper Award, 2019**).
- J33. Mingyue Ji, Giuseppe Caire and Andreas F. Molisch, “The Throughput-Outage Trade-off in Wireless One-Hop Caching Networks,” in *Information Theory, IEEE Transactions on*, vol.61, no.12, pp.6833-6859, Dec. 2015.
- J34. Andreas F. Molisch, Giuseppe Caire, David Ott, Jeffrey R. Foerster, Dilip Bethanabhotla and Mingyue Ji, “Caching Eliminates the Wireless Bottleneck in Video-Aware Wireless Networks,” *Hindawi’s journal of Advances in Electrical Engineering*, Volume 2014 (2014), Article ID 261390, 13 pages (**Invited**).

#### **Book Chapters:**

- 1. Kai Wan and Mingyue Ji, “Caching in Wireless Device-to-Device Networks,” in *Wiley 5G Ref*, 2020.
- 2. “Scaling laws for cache-aided device-to-device networks for wireless video” in “Edge Caching for Mobile Networks,” (Editors: Vincent Poor, Wei Chen), *IET*, with M.-C. Lee and A. F. Molisch.
- 3. “Device-to-Device Caching,” in “Wireless Edge Caching: Modeling, Analysis, and Optimization,” (Editors: Thang Xuan Vu, Symeon Chatzinotas, Ejder Bastug, Tony Q.S. Quek), Cambridge University Press.
- 4. “Device-to-Device Communications,” in “Towards 5G: Applications, Requirements & Candidate Technologies,” (Editors: S. Talwar, R. Vannithamby), John Wiley & Sons, Ltd. with Andreas F. Molisch, Joongheon Kim, Daoud Burghal, and Arash Saber Tehrani.

#### **Review Papers:**

- 1. Minseok Choi, Albert No, Mingyue Ji and Joongheon Kim, “Cache-Assisted Dynamic Video Delivery for Mobile Users”, Edited by Cong Shen, in *IEEE COMSOC MMTTC Communications — Review*, June 2020.

#### **Conference Papers:**

##### *Under review:*

- U1. Jiayi Wang, Shiqiang Wang, Rong-Rong Chen, Mingyue Ji, “A New Perspective on Data Heterogeneity in Federated Averaging,” submitted to UAI 2023.
- U2. Xiang Zhang, Kai Wan, Hua Sun, Mingyue Ji and Giuseppe Caire, “A Novel Scheme for Cache-Aided Multiuser Private Information Retrieval with Server and User Privacy,” submitted to IEEE ISIT 2023.
- U3. Wenbo Huang, Kai Wan, Hua Sun, Mingyue Ji, Robert C. Qiu and Giuseppe Caire, “Fundamental Limits of Distributed Linearly Separable Computation Under Cyclic Assignment,” submitted to IEEE ISIT 2023.
- U4. Ali Gholami, Kai Wan, Hua Sun, Mingyue Ji and Giuseppe Caire, “On Multi-Message Private Computation,” submitted to IEEE ISIT 2023.
- U5. Xi Zhong, Joerg Kliewer and Mingyue Ji, “Uncoded Storage Coded Transmission Elastic Computing with Straggler Tolerance in Heterogeneous Systems,” submitted to IEEE ISIT 2023.
- U6. Xiang Zhang, Arupjyoti Bhuyan, Sneha Kumar Kasera and Mingyue Ji, “Multi-Agent Deep Reinforcement Learning Enabled Distributed Power Allocation for Millimeter-Wave Cellular and Beyond,” submitted to ICC Workshop 2023.
- U7. Syed Ayaz Mahmud, Mingyue Ji, Sneha Kumar Kasera “OTFS vs OFDM : Implementation and Performance Analyses over the POWDER Testbed,” submitted to ICCWorkshop 2023.

##### *Published or Accepted:*

- C1. Xiang Zhang, Arupjyoti Bhuyan, Sneha Kumar Kasera and Mingyue Ji, “Distributed Power Allocation for 6-GHz Unlicensed Spectrum Sharing via Multi-agent Deep Reinforcement Learning,” in IEEE ICIT 2023 (**invited paper**).
- C2. Jiayi Wang, Shiqiang Wang, Rong-Rong Chen, Mingyue Ji, “Rethinking the data heterogeneity in Federated Learning,” in Asilomar 2023 (**invited paper**).
- C3. Xi Zhong, Joerg Kliewer, Mingyue Ji, “Matrix Multiplication with Straggler Tolerance in Coded Elastic Computing via Lagrange Code,” in IEEE ICC 2023.
- C4. Kai Wan, Xin Yao, Hua Sun, Mingyue Ji, Giuseppe Caire, “GroupSecAgg: Information Theoretic Secure Aggregation with Uncoded Groupwise Keys,” in IEEE ICC 2023.
- C5. Shiqiang Wang, Jake Perazzone, Mingyue Ji and Kevin S. Chan, “Federated Learning with Flexible Control,” in IEEE INFOCOM 2023.
- C6. Shiqiang Wang and Mingyue Ji, “A Unified Analysis of Federated Learning with Arbitrary Client Participation,” in NeurIPS 2022.
- C7. Mingyue Ji, Xiang Zhang and Kai Wan, “A New Design Framework for Heterogeneous Uncoded Storage Elastic Computing,” in IEEE CCDWN at WiOpt 2022.
- C8. Xiang Zhang and Mingyue Ji, “Finite-length Analysis of D2D Coded Caching via Exploiting Asymmetry in Delivery,” in IEEE SPAWC 2022 (**Invited paper**).
- C9. Arupjyoti Bhuyan, Mingyue Ji, Xiang Zhang, Sneha Kumar Kasera, Shamik Sarkar, “Secure mmWave Spectrum Sharing with Autonomous Beam Scheduling for 5G and Beyond,” in IEEE WAMICON 2022 (**Invited paper**).
- C10. Xiang Zhang, Kai Wan, Hua Sun, Mingyue Ji and Giuseppe Caire, “Fundamental Limits of Cache-aided Multiuser PIR: The Two-message Two-user Case,” in IEEE ISIT 2022.
- C11. Ali Gholami, Kai Wan, Hua Sun, Mingyue Ji and Giuseppe Caire, “Coded Caching With Private Demands and Caches,” in IEEE ISIT 2022.
- C12. Jiayi Wang, Shiqiang Wang, Rong-Rong Chen and Mingyue Ji, “Demystifying Why Local Averaging Helps: Convergence Analysis of Hierarchical SGD,” in AAAI 2022.
- C13. Jake Perazzone, Shiqiang Wang, Mingyue Ji and Kevin S Chan, “Communication-Efficient Device Scheduling for Federated Learning Using Stochastic Optimization,” in IEEE INFOCOM 2022.
- C14. Hankyul Baek, Won Joon Yun, Yunseok Kwak, Soyi Jung, Mingyue Ji, Mehdi Bennis, Jihong Park, Joongheon Kim, “Joint Superposition Coding and Training for Federated Learning over Multi-Width Neural Networks,” in IEEE INFOCOM 2022.
- C15. Shakir-ul Haque Khan, Mohit Karkhanis, Bryan Hatasaka, Sayali Tope, Seungbeom Noh, Rana Dalpati, Ashrafuzzaman Bulbul, Ravi V. Mural, Aishwaryadev Banerjee, James C. Schnable, Mingyue Ji, Carlos Mastrangelo, Ling Zang and Hanseup Kim, “Filed Development of Nanogap Gas Sensor for Crop Damage Detection,” in the 35th International Conference on Micro Electro Mechanical Systems (IEEE MEMS 2022) Conference.
- C16. Xiang Zhang, Shamik Sarkar, Arupjyoti Bhuyan, Sneha Kumar Kasera and Mingyue Ji, “A Q-learning Approach to Distributed Beam Scheduling for mm-Wave Networks over Non-cooperative Operators,” in IEEE DySPAN 2021.
- C17. Nicholas Woolsey, Joerg Kliewer, Rong-Rong Chen and Mingyue Ji, “A Practical Algorithm Design and Evaluation for Heterogeneous Elastic Computing with Stragglers,” in IEEE Globecom 2021 (**Best paper award**).
- C18. Hankyul Baek, Won Joon Yun, Soyi Jung, Mingyue Ji, Joongheon Kim, Jihong Park, and Mehdi Bennis, “Communication and Energy Efficient Slimmable Federated Learning via Superposition Coding and Successive Decoding,” in 2021 ICML International Workshop on Federated Learning for User Privacy and Data Confidentiality.
- C19. Xiang Zhang, Shamik Sarkar, Arupjyoti Bhuyan, Sneha Kumar Kasera and Mingyue Ji, “A Non-cooperative Game-based Approach to Distributed Beam Scheduling in Millimeter-Wave Networks,” in IEEE Asilomar 2020.
- C20. Xiang Zhang, Kai Wan, Hua Sun, Mingyue Ji and Giuseppe Caire, “A New Design of Cache-aided Multiuser Private Information Retrieval with Uncoded Prefetching,” in ISIT 2021.
- C21. Kai Wan, Hua Sun, Mingyue Ji, Daniela Tuninetti and Giuseppe Caire, “On Secure Distributed Linearly Separable Computation,” in ISIT 2021.

- C22. Kai Wan, Hua Sun, Mingyue Ji, Daniela Tuninetti and Giuseppe Caire, “Cache-Aided Matrix Multiplication Retrieval,” in ISIT 2021.
- C23. Shakir-ul Haque Khan, Sayali Tope, Rana Dalpati, Kyeong Heon Kim, Seungbeom Noh, Ashrafuz-zaman Bulbul, Ravi V. Mural, Aishwaryadev Banerjee, James C. Schnable, Mingyue Ji, Carlos Mas-trangelo, Ling Zang and Hanseup Kim, “Development of Gas Sensor for Green Leaf Volatile Detection,” in 2021 21st International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers).
- C24. Ming-Chun Lee, Mingyue Ji and Andreas F. Molisch, “Throughput-Outage Scaling Laws for Wireless Single-Hop D2D Caching Networks with Physical Models,” in IEEE ICC 2021.
- C25. Nicholas Woolsey, Mingyue Ji and Brent Kraczek, “Predicting Needs in Future Decentralized Networks through Analysis of Barrage Relay Networks,” in IEEE WCNC 2021.
- C26. Mozghan Bayat, Kai Wan, Mingyue Ji and Giuseppe Caire, “Cache-Aided Modulation for Heterogeneous Coded Caching over a Gaussian Broadcast Channel,” in IEEE Globecom 2020.
- C27. Kai Wan, Mingyue Ji and Giuseppe Caire, “Topological Coded Distributed Computing,” in IEEE Globecom 2020.
- C28. Ming-Chun Lee, Mingyue Ji and Andreas F. Molisch, “Throughput-Outage Analysis of Cache-Aided Wireless Multi-Hop D2D Networks,” in IEEE Globecom 2020.
- C29. Xiang Zhang, Shamik Sarkar, Arupjyoti Bhuyan, Sneha Kumar Kasera and Mingyue Ji, “A Stochastic Optimization Framework for Distributed Beam Scheduling in 5G mm-Wave Networks over Non-cooperative Operators,” in IEEE Asilomar 2020.
- C30. Shamik Sarkar, Xiang Zhang, Arupjyoti Bhuyan, Mingyue Ji and Sneha Kumar Kasera, “Enabling Uncoordinated Spectrum Sharing in Millimeter Wave Networks Using Carrier Sensing,” in IEEE Asilomar 2020.
- C31. Xiang Zhang, Kai Wan, Hua Sun, Mingyue Ji and Giuseppe Caire, “Cache-Aided Multiuser Private Information Retrieval,” in IEEE ISIT 2020.
- C32. Xiang Zhang, Xianfeng Yang and Mingyue Ji, “A New Design Framework on D2D Coded Caching with Optimal Rate and Less Subpacketizations,” in IEEE ISIT 2020.
- C33. Nicholas Woolsey, Rong-Rong Chen and Mingyue Ji, “Heterogeneous Computation Assignments in Coded Elastic Computing,” in IEEE ISIT 2020.
- C34. Kai Wan, Hua Sun, Mingyue Ji, Daniela Tuninetti and Giuseppe Caire, “Novel Converse for Device-to-Device Demand-Private Caching with a Trusted Server,” in IEEE ISIT 2020.
- C35. Kai Wan, Hua Sun, Mingyue Ji, Daniela Tuninetti and Giuseppe Caire, “Cache-Aided Scalar Linear Function Retrieval,” in IEEE ISIT 2020.
- C36. Xiang Zhang, Kai Wan, Hua Sun, Mingyue Ji and Giuseppe Caire, “Cache-aided Interference Alignment for Multiuser Private Information Retrieval,” in CCDWN workshop in IEEE WiOpt, 2020 (**Invited paper**).
- C37. Nicholas Woolsey, Rong-Rong Chen and Mingyue Ji, “Coded Distributed Computing with Heterogeneous Function Assignments,” in IEEE ICC 2020.
- C38. Kai Wan, Hua Sun, Mingyue Ji, Daniela Tuninetti and Giuseppe Caire, “Device-to-Device Private Caching with Trusted Server,” in IEEE ICC 2020.
- C39. Nicholas Woolsey, Rong-Rong Chen and Mingyue Ji, “An Optimal Iterative Placement Algorithm for PIR from Heterogeneous Storage-Constrained Databases,” in IEEE Globecom 2019.
- C40. Ming-Chun Li, Mingyue Ji, Andreas F Molisch and Nishanth Sastry, “Performance of Caching-Based D2D Video Distribution with Measured Popularity Distributions,” in IEEE Globecom 2019.
- C41. Nicholas Woolsey, Rong-Rong Chen and Mingyue Ji, “Cascaded Coded Distributed Computing on Heterogeneous Networks,” in IEEE ISIT 2019.
- C42. Nicholas Woolsey, Rong-Rong Chen and Mingyue Ji, “A New Design of Private Information Retrieval for Storage Constrained Databases,” in IEEE ISIT 2019.
- C43. Kai Wan, Daniela Tuninetti, Mingyue Ji and Giuseppe Caire, “On Coded Caching with Correlated Files,” in IEEE ISIT 2019.
- C44. Kai Wan, Daniela Tuninetti, Mingyue Ji and Giuseppe Caire, “Novel Inter-file Coded Placement and D2D Delivery for a Cache-aided Fog-RAN Architecture,” in IEEE ISIT 2019.
- C45. Nicholas Woolsey, Rong-Rong Chen and Mingyue Ji, “Coded Distributed Computing with Heterogeneous Function Assignments,” ICML CodML Workshop 2019.

- C46. Xiang Zhang, Nicholas Woolsey and Mingyue Ji, “Cache-aided Interference Management Using Hypercube Combinatorial Cache Design,” in IEEE ICC 2019.
- C47. Kai Wan, Daniela Tuninetti, Mingyue Ji and Pablo Piantanida, “Fundamental Limits of Distributed Data Shuffling,” in IEEE Allerton 2018.
- C48. Kai Wan, Mingyue Ji, Pablo Piantanida and Daniela Tuninetti, “On the Benefits of Asymmetric Coded Cache Placement in Combination Networks with End-User Caches,” in IEEE ISIT 2018.
- C49. Nicholas Woolsey, Rong-Rong Chen and Mingyue Ji, “A New Combinatorial Design of Coded Distributed Computing,” in IEEE ISIT 2018.
- C50. Nicholas Woolsey, Rong-Rong Chen and Mingyue Ji, “Coded Caching in Wireless Device-to-Device Networks Using a Hypercube Approach,” in IEEE ICC Workshop 2018.
- C51. Kai Wan, Daniela Tuninetti, Mingyue Ji and Pablo Piantanida, “A Novel Asymmetric Coded Placement in Combination Networks with end-user Caches,” in IEEE ITA 2018.
- C52. Ahmad Rezazadeh Reyhani, Arman Farhang, Mingyue Ji, Rong-Rong Chen and Behrouz Farhang-Boroujeny, “Analysis of Discrete-Time MIMO OFDM-Based Orthogonal Time Frequency Space Modulation,” in IEEE ICC 2018.
- C53. Kai Wan, Mingyue Ji, Pablo Piantanida and Daniela Tuninetti, “Caching in Combination Networks: Novel Multicast Message Generation and Delivery by Leveraging the Network Topology,” in IEEE ICC 2018.
- C54. Mingyue Ji and Rong-Rong Chen, “Fundamental Limits of Wireless Distributed Computing Networks,” in IEEE INFOCOM 2018.
- C55. Kai Wan, Daniela Tuninetti, Pablo Piantanida and Mingyue Ji, “On Combination Networks with Cache-aided Relays and Users,” in IEEE WSA 2018 (**Invited paper**).
- C56. Nicholas Woolsey, Rong-Rong Chen and Mingyue Ji, “Device-to-Device Caching Networks with Subquadratic Subpacketizations,” in IEEE Globecom 2017.
- C57. Kai Wan, Daniela Tuninetti, Mingyue Ji and Pablo Piantanida, “State-of-the-art in Cache-aided Combination Networks,” in IEEE Asilomar 2017 (**Invited paper**).
- C58. Kai Wan, Mingyue Ji, Pablo Piantanida and Daniela Tuninetti, “Novel Outer Bounds for Combination Networks with End-User-Caches,” in IEEE ITW 2017.
- C59. Kai Wan, Mingyue Ji, Pablo Piantanida and Daniela Tuninetti, “Novel Inner Bounds with Uncoded Cache Placement for Combination Networks with End-User-Caches,” in IEEE Allerton, 2017.
- C60. Mingyue Ji, Rong-Rong Chen, Giuseppe Caire and Andreas F. Molisch, “Fundamental Limits of Distributed Caching in Multihop D2D Wireless Networks,” in IEEE ISIT 2017.
- C61. Mingyue Ji and Rong-Rong Chen, “Caching and coded multicasting in slow fading environment,” in IEEE WCNC 2017.
- C62. Angela Sara Cacciapuoti, Marcello Caleffi, Mingyue Ji, Jaime Llorca and Antonia Tulino, “On the Impact of Lossy Channels for Wireless Edge Caching,” in IEEE ICC 2016.
- C63. Mingyue Ji, Antonia Tulino, Jaime Llorca and Giuseppe Caire, “Caching in Combination Networks,” in IEEE Asilomar, 2015.
- C64. Mingyue Ji, Ming Fai Wong, Antonia Tulino, Jaime Llorca, Giuseppe Caire, Michelle Effros and Michael Langberg, “On the Fundamental Limits of Caching in Combination Networks,” in IEEE SPAWC 2015.
- C65. Giuseppe Vettigli, Mingyue Ji, Jaime Llorca, Antonia Tulino and Paola Festa, “An Efficient Coded Multicasting Scheme Preserving the Multiplicative Caching Gain,” in IEEE INFOCOM Workshop 2015.
- C66. Mingyue Ji, Karthikeyan Shanmugam, Giuseppe Vettigli, Jaime Llorca, Antonia Tulino and Giuseppe Caire, “An Efficient Multiple-Groupcast Coded Multicasting Scheme for Finite Fractional Caching,” in IEEE ICC 2015.
- C67. Mingyue Ji, Antonia Tulino, Jaime Llorca and Giuseppe Caire, “Caching-Aided Coded Multicasting with Multiple Random Requests,” in IEEE ITW, 2015.
- C68. Sang-Woon Jeon, Song-Nam Hong, Mingyue Ji and Giuseppe Caire, “On the Capacity of Multihop Device-to-Device Caching Networks,” in IEEE ITW 2015.
- C69. Sang-Woon Jeon, Song-Nam Hong, Mingyue Ji and Giuseppe Caire, “Caching in Wireless Multihop Device-to-Device Networks,” in IEEE ICC 2015 (**Best paper award**).
- C70. Karthikeyan Shanmugam, Mingyue Ji, Antonia Tulino, Jaime Llorca and Alex Dimakis, “Finite Length Analysis of Caching-Aided Coded Multicasting,” in IEEE Allerton 2014.

- C71. Mingyue Ji, Antonia Tulino, Jaime Llorca and Giuseppe Caire, “Caching and Coded Multicasting: Multiple Groupcast Index Coding,” in IEEE GlobalSIP, 2014.
- C72. Mingyue Ji, Antonia Tulino, Jaime Llorca and Giuseppe Caire, “On the Average Performance of Caching and Coded Multicasting with Random Demands,” in IEEE ISWCS, 2014.
- C73. Mingyue Ji, Giuseppe Caire and Andreas F. Molisch, “Fundamental Limits of Distributed Caching in D2D Wireless Networks,” in IEEE ITW, 2013.
- C74. Mingyue Ji, Giuseppe Caire and Andreas F. Molisch, “Optimal Throughput-Outage Trade-off in Wireless One-Hop Caching Networks,” in IEEE ISIT, 2013.
- C75. Negin Golrezaei, Mingyue Ji, Andreas F. Molisch, Alexandros G. Dimakis and Giuseppe Caire, “Device-to-Device Communications for Wireless Video Delivery,” in IEEE Asilomar Conference on Signals, Systems, and Computers, 2012.
- C76. Hamid R. Sadjadpour, and J.J. Garcia-Luna-Aceves and Mingyue Ji, “Capacity of Distributed MIMO with Finite Size,” in IEEE IWCMC 2011 conference.
- C77. Zheng Wang, Mingyue Ji, Hamid R. Sadjadpour and J.J. Garcia-Luna-Aceves, “On the Minimum Side Information of MIMO Broadcast Channel,” European Wireless 2010 conference (**Best student paper award**).
- C78. Mingyue Ji, Zheng Wang, Hamid R. Sadjadpour and J.J. Garcia-Luna-Aceves, “Capacity of Wireless Networks with Heterogeneous Traffic Using Cooperation,” in IEEE INFOCOM 2010 conference (**Student Travel Grant Award**).
- C79. Zheng Wang, Mingyue Ji, Hamid R. Sadjadpour and J.J. Garcia-Luna-Aceves, “Opportunistic Interference Management Increases the Capacity of Ad Hoc Networks ,” in IEEE Secon 2010 conference.
- C80. Mingyue Ji, Zheng Wang, Hamid R. Sadjadpour and J.J. Garcia-Luna-Aceves, “Capacity of Wireless Networks with Heterogeneous Traffic under Physical Model,” in IEEE Sarnoff Symposium 2010.
- C81. Mingyue Ji, Zheng Wang, Hamid R. Sadjadpour and J.J. Garcia-Luna-Aceves, “The Capacity of Muthop Relay Wireless Networks,” European Wireless 2010 conference.
- C82. Mingyue Ji, Zheng Wang, Hamid R. Sadjadpour and J.J. Garcia-Luna-Aceves, “Capacity of Wireless Networks with Heterogeneous Traffic,” in IEEE Globecom 2009 conference.
- C83. Zheng Wang, Mingyue Ji, Hamid R. Sadjadpour and J.J. Garcia-Luna-Aceves, “Cooperation-Multiuser Diversity Tradeoff in Wireless Cellular Networks,” in IEEE Globecom 2009 conference.
- C84. Zheng Wang, Mingyue Ji, Hamid R. Sadjadpour and J.J. Garcia-Luna-Aceves, “Interference Management: A New Paradigm in Wireless Cellular Networks,” in IEEE Milcom 2009 conference.

## TEACHING EXPERIENCES

Lecture videos can be found at our YouTube channel:

<https://www.youtube.com/channel/UC850qek4kWgZJ0d3SIcAhaA>.

### Graduate courses:

- University of Utah-ECE 6520 Information Theory, Spring 2021
- University of Utah-ECE/CS 6960 Fundamentals of Cloud Systems, Spring 2019
- University of Utah-ECE/CS 6960 Caching Networks, Fall 2016

### Undergraduate courses:

- University of Utah-ECE 5520 Digital Communication Systems, Spring 2020
- University of Utah-ECE 3500 Fundamentals of Signals and Systems, Spring 2017, 2018, Fall 2018, Spring 2019, Fall 2019, Fall 2020, Fall 2021, Fall 2022, Fall 2023
- University of Utah-ECE 5510 Random Processes, Fall 2017

## PROFESSIONAL SERVICES AND MEMBERSHIP

### Professional Services:

Associate Editor for

- IEEE Transactions on Information Theory, 11/2022-present
- IEEE Transactions on Communications, 10/2020-present
- ELSEVIER Digital Communications and Networks, 07/2021-present
- EURASIP Journal on Wireless Communications and Networking, 02/2017-present
- Frontiers in Communications and Networks, 05/2020 - present

Guest Editor for

- MDPI Information Special Issue “Advanced Technologies in Storage, Computing, and Communication,” 04/2022-present
- MDPI Electronics Special Issue “Distributed Computing and Storage,” 05/2018 - 03/2019

Conference Co-Chair for

- Co-chair of Communication Theory Symposium at IEEE ICC 2024
- Co-chair of Buffalo Day for 5G and Wireless Internet of Things 2024
- Co-chair of Wireless Communication Symposium at IEEE ICC 2023
- Co-chair of Caching, Computing and Delivery in Wireless Networks Workshop (CCDWN 2022) at 20th International Symposium on Modeling and Optimization in Mobile, Ad hoc, and Wireless Networks (WiOpt 2022)
- Publicity co-chair of IEEE INFOCOM 2022
- Co-chair of Algorithms and Theory Track of IEEE MASS 2021

Chapter Chair for

- IEEE Signal Processing Society Utah Chapter, 01/2018-present.

NSF Panelists for 2018, 2019, 2020, 2022

Technical Program Committee (TPC) member for

- IEEE ISIT 2019-2021
- FL-AAAI 2022
- FL-ICML 2020, 2021
- IEEE PIMRC 2020-2023
- IEEE ICC 2020-2023
- IEEE Globecom 2021-2023
- IEEE INFOCOM 2018-2023
- IEEE CCDWN 2020-2022
- IEEE IWQoS 2021
- IEEE WCSP 2020
- IEEE SigTelCom 2019
- ACM MobiQuitous, 2018
- IEEE WCNC 2017-2021
- IEEE 5G World Forum (WF-5G) 2018-2022

Regular reviewer for

- Journals:
  - IEEE Transactions on Information Theory

- IEEE Journal on Selected Areas in Communications
  - IEEE Transactions on Wireless Communications
  - IEEE Transactions on Communications
  - IEEE Transactions on Signal Processing
  - IEEE Transaction on Networking
  - IEEE Transactions on Pattern Analysis and Machine Intelligence
  - IEEE Journal on Selected Areas in Information Theory
  - Transactions on Green Communications and Networking
  - IEEE Transactions on Information Forensics and Security,
  - IEEE Transactions on Mobile Computing
  - IEEE Transactions on Cognitive Communications and Networking
  - IEEE Transactions on Internet of Things
  - IEEE Journal of Biomedical and Health Informatics
  - IEEE Communication Magazine
  - IEEE Access
- Conferences: IEEE ISIT, IEEE ITW, IEEE INFOCOM, AISTATS, IEEE NetCod, IEEE ICC, IEEE GLOBECOM, IEEE WCNC, IEEE PRMIC, IEEE SECON, IEEE MILCOM, IEEE MCECN, IEEE IWCIT, ICML, ICML Workshop, NeurIPS.

**Membership:** IEEE member, IEEE Information Theory Society, IEEE Communication Theory Technical Committee (CTTC), Signal Processing and Computing for Communications Technical Committee (SPCC-TC)

## GRADUATE STUDENTS

- Current graduate students:
  1. Yanyu Hu: EE PhD, 2022 Fall - Present (Machine Learning based Wireless Communication funded by INL LDRD)
  2. Xi Zhong: EE PhD, 2021 Fall - Present (Elastic and Distributed Computing funded by NSF CAREER)
  3. Xin Yao: EE PhD, 2021 Fall - Present (Private Distributed Machine Learning and Federated Learning over POWDER funded by NSF)
  4. Xi Wang: EE PhD, 2021 Fall - Present (Internet of Things, Beyond 5G Wireless Networking Design and Implementations funded by ARPA-E and DOE)
  5. Jiayi Wang: EE PhD, 2019 Fall - Present (Federated and Distributed Learning funded by NSF)
  6. Xiang Zhang: EE PhD, 2018 Spring - Present (D2D Coded Caching, Cache-aided Private Information/Function Retrieval, 5G secure mmWave communications funded by NSF and INL LDRD)
- Alumni:
  - PhD Students:
    1. Nicholas Woolsey: EE PhD, 2017 Fall - 2020 Fall (Coded Distributed Computing, Private Information Retrieval, Coded Elastic Computing funded by NSF, Utah Seed Grant), now at Trabus Technologies, San Diego, CA.
  - Master Students:
    1. Bryan Hatasaka: CE MS, 2020 Fall - 2021 Fall (Low Power Wireless Sensor Networks funded by ARPA-E)

2. Sean Hammond: CE MS, 2019 Fall - 2020 Spring (Design and Implementation of Named Data Networking (NDN) funded by L3Harris)
3. Jake Maschoff: CE MS, 2019 Fall - 2020 Spring (Design and Implementation of Named Data Networking (NDN) funded by L3Harris)
4. Erik Swenson: EE MS, 2019 Fall - 2020 Spring (Machine Learning for MIMO)
5. Marko Ljubicic: EE MS, 2019 Fall (Algorithm designs for Named Data Networking (NDN))
6. Ramya Selvan, CE MS 2017 Spring - 2017 Fall, Independent Study (Now at Nvidia, Boston)

## UNDERGRADUATE STUDENTS

- Current undergraduate students:
  1. Tyler Bytendorp: 2022 Fall - present (Sensor-scheduling strategies in electronic support funded by L3Harris)
  2. Tyler Roybal: 2022 Fall - present (Sensor-scheduling strategies in electronic support funded by L3Harris)
  3. Benjamin Hayes: 2022 Fall - present (Sensor-scheduling strategies in electronic support funded by L3Harris)
  4. Collin Griswold: 2022 Fall - present (Sensor-scheduling strategies in electronic support funded by L3Harris)
  5. Fernando Araujo: 2022 Fall - present (Sensor-scheduling strategies in electronic support funded by L3Harris)
  6. Zhengyan Liu: 2022 Spring - present (ARPA-E sensor network)
- Alumni:
  1. Eldar Muhic: 2021 Summer- 2022 Spring (Machine learning based wireless communication funded by L3Harris)
  2. Jack Sorensen: 2021 Summer- 2022 Spring (Machine learning based wireless communication funded by L3Harris)
  3. Riley J. Richards: 2021 Summer- 2022 Spring (Machine learning based wireless communication funded by L3Harris)
  4. Xintong (Tiffany) Liu (selected for participation in the Undergraduate Research Opportunities Program (UROP) for 2019 and 2020): 2019 Fall - 2021 Summer (Federated learning)
  5. Merek Goodrich: 2019 Fall - 2021 Spring (ARPA-E sensor network and elastic computing over wireless heterogeneous Raspberry Pi networks)
  6. Henry Crandall: 2020 Fall - 2021 Spring (Gradient Coding over wireless Raspberry Pi networks)
  7. Jack N. Fahey: 2020 Fall - 2021 Spring (Wireless Named Data Networking sponsored by L3Harris)
  8. Kevin Chau: 2020 Fall - 2021 Spring (Wireless Named Data Networking sponsored by L3Harris)
  9. Camden Kiley Ewell: 2020 Fall - 2021 Spring (Wireless Named Data Networking sponsored by L3Harris)
  10. Ye Zhou: 2020 Fall - 2021 Spring (Wireless Named Data Networking sponsored by L3Harris)
  11. Xingyue (Sophie) Wang: 2019 Fall - 2020 Spring (Implementation on Coded Distributed Computing over AWS)
  12. Joseph Lyman: 2019 Summer - 2019 Fall (ARPA-E sensor network)
  13. Michael Crabtree: 2019 Summer - 2020 Spring (Federated learning over Raspberry Pi networks)
  14. Mary Richardson: 2019 Summer - 2020 Spring (Federated learning over Raspberry Pi networks)
  15. Yun-Hsiang (Jerry) Hu: 2019 Summer - 2020 Spring (Federated learning over Raspberry Pi networks)

16. Bryan Hatasaka: 2019 Summer - 2020 Spring (NDN design and implementation sponsored by L3Harris)
17. Katlynne Bills: 2019 Summer - 2020 Spring (NDN design and implementation sponsored by L3Harris)
18. Thomas Van Hook: 2019 Summer - 2020 Spring (NDN design and implementation sponsored by L3Harris)
19. Jason Stauffer: 2019 Summer - 2020 Spring (NDN design and implementation sponsored by L3Harris)
20. Garrick Clegg: 2019 Summer - 2020 Spring (NDN design and implementation sponsored by L3Harris)
21. Collin Tate: 2018 Summer - 2019 Summer (Federated learning over Raspberry Pi networks)
22. Justin C. Olson: 2018 Summer - 2019 Summer (Federated learning over Raspberry Pi networks)
23. David M. Moody: 2018 Summer - 2019 Spring (Federated learning over Raspberry Pi networks)
24. Joshua Nett: 2018 Summer - 2019 Spring (Federated learning over Raspberry Pi networks)
25. Keoki Daley: 2018 Summer - 2019 Spring (Federated learning over Raspberry Pi networks)
26. Gavin M. Yeip: 2017 Summer - 2018 Spring (Design and evaluate CDMA systems for airplane communications sponsored by HAFB)
27. Matthew W. Heisler: 2017 Summer - 2018 Spring (Design and evaluate CDMA systems for airplane communications sponsored by HAFB)
28. Nathan B. Mower: 2017 Summer - 2018 Spring (Design and evaluate CDMA systems for airplane communications sponsored by HAFB)
29. Phuc Nguyen: 2017 Summer - 2018 Spring (Design and evaluate CDMA systems for airplane communications sponsored by HAFB)

## **VISITING PHD STUDENTS**

### **Korea University:**

1. Won Joon Yun
2. Hankyul Baek

## **GRADUATE COMMITTEE**

### **University of Utah:**

1. Farhan Sium (EE), Advisor: Hanseup Kim
2. Syed Ayaz Mahmud (CS), Advisor: Senha Kumar Kasera
3. Kanchana Ruwanpathirana (CS), Advisor: Aditya Bhaskara
4. Shamima Nasrin Juthi (ECE), Advisor: Hanseup Kim
5. Xiang Huang (ECE), Advisor: Rong-Rong Chen
6. Cheng Chen (ECE), Advisor: Yi Zhou
7. Ziyi Chen (ECE), Advisor: Yi Zhou
8. Mehrdad Pournader (ECE), Advisor: Yu Xiang
9. Fatemeh Koohestan Mahalian (ECE), Advisor: Neil Cotter
10. Xinyang Rui (ECE), Advisor: Mostafa Sahraei-Ardakani

11. Brent Kenney (ECE), Advisor: Behrouz Farhang-Boroujeny
12. Stephen Neil Jenkins (ECE), Advisor: Behrouz Farhang-Boroujeny
13. Amir Aminjavaheri (ECE), Advisor: Behrouz Farhang-Boroujeny
14. Ahmad RezazadehReyhani (ECE), Advisor: Behrouz Farhang-Boroujeny
15. Stephen Andrew Larawy (ECE), Advisor: Behrouz Farhang-Boroujeny
16. Ricardo Bigolin Lanfredi (ECE), Advisor: Tolga Tasdizen

**EURECOM, France:**

1. Federico Brunero (Communication Systems Department), Advisor: Petros Elia

**Trinity College Dublin, Ireland:**

1. Mohsen Bayat (Electronic & Elect. Engineering Department), Advisor: Arman Farhang

**INTERNAL SERVICES**

- Retention, Tenure, and Promotion (RPT) Committee: 07/2022 - present
- Teaching Excellence Committee of College of Engineering: 07/2021 - present
- ECE Assessment Committee: 02/2021 - present
- ABET Course Reviewer, 11/2020 - present
- EE Scholarship Applicant Reviewer, 02/2020 - present
- ECE Appeals & Petitions Committee, 10/2019 - present
- Undergraduate Committee, 09/2018 - present
- Lab Committee, 09/2018 - present
- Faculty Search Committee (system area), 09/2017 - present
- Faculty Search Committee (department), 09/2016 - 05/2017

**CONTACT INFORMATION FOR REFERENCES**

**Giuseppe Caire** (PhD advisor)

Alexander von Humboldt Professor of Electrical Engineering and Computer Science Department  
Technische Universität Berlin

*Email:* [caire@tu-berlin.de](mailto:caire@tu-berlin.de)

*Address:*

Technische Universität Berlin

Fakultät IV

FG Theoretische Grundlagen der Kommunikationstechnik

Sekretariat HFT 6, 6.Etage

Einsteinufer 25

Room HFT-FT 606

10587 Berlin, Germany

*Tel.:* +49(0)30 314-29668

**Andreas F. Molisch** (PhD co-advisor)

Solomon Golomb – Andrew and Erna Viterbi Chair and Professor of Electrical and Computer Engineering  
Department

University of Southern California

*Email:* [molisch@usc.edu](mailto:molisch@usc.edu)

*Address:*

Department of Electrical and Computer Engineering - Systems  
EEB 530

Hughes Aircraft Electrical Engineering Building

3740 McClintock Ave.

Los Angeles, CA, 90089-2565, USA

*Tel.:* +1(213) 740-4670

**Daniela Tuninetti** (Collaborator)

Professor, and Interim Department Head

Department of Electrical and Computer Engineering

University of Illinois at Chicago

*Email:* [danielat@uic.edu](mailto:danielat@uic.edu)

*Address:*

1027 SEO

851 S. Morgan St, MC 154, Chicago, IL 60607, USA

*Tel.:* +1(312) 413-7431