TINGJUN CHEN

Ph.D. Candidate, Electrical Engineering, Columbia University
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RESEARCH INTERESTS

Full-duplex wireless, massive antenna and millimeter-wave systems, edge cloud, optical-wireless and 5G networks, ultra-low-power and energy harvesting networks, and the Internet-of-Things: Algorithms, optimization, system design and implementation.

EDUCATION

2014–Present **Columbia University**, New York, NY
Ph.D. Candidate, Electrical Engineering
M.Phil. received in Feb. 2018, Cumulative GPA: 4.14/4.00
M.S. received in Oct. 2015, Final GPA: 4.13/4.00
Advisor: Prof. Gil Zussman

2010–2014 **Tsinghua University**, Beijing, China
B.Eng., Electronic Engineering
Advisors: Prof. Zhisheng Niu and Prof. Sheng Zhou

HONORS & AWARDS

2019–2020 **Facebook Fellowship**
sole fellow in Networking and Connectivity, only 21 fellows were selected out of more than 900 applications worldwide
2019 ACM MobiCom Student Research Competition (SRC) Winner - First Place [DP5]
2019 ACM MobiHoc Best Paper Finalist [C11]
2018 The 6th Heidelberg Laureate Forum Young Researcher
2018 Columbia Engineering Oscar and Verna Byron Fellowship
2018 Creative Tech Award, demo at the NYC Media Lab's Annual Summit
2018 Columbia EE Jacob Millman Award (Outstanding Teaching Assistant)
2017 Qualcomm Innovation Fellowship Finalist
2016 **ACM CoNEXT Best Paper Award** [C4]
2016 Honorable Mention Award, demo at the NYC Media Lab's Annual Summit
2015 **Columbia EE Edwin Howard Armstrong Memorial Award**
awarded to one outstanding M.S. candidate, highest recognition awarded to an M.S. student
2014–2017 **Wei Family Private Foundation Fellowship**
granted to students of Chinese heritage, only 3 fellowships were awarded in 2014–2017
2014 Tsinghua University Outstanding Undergraduate Thesis Award
2014 Tsinghua Scholarship for Academic Advancement
2014 Tsinghua Scholarship for Literature and Art Excellence

PUBLICATIONS

Conference Proceedings

C17. D. Raychaudhuri, I. Seskar, G. Zussman, T. Korakis, D. Kilper, **T. Chen**, J. Kolodziejski, M. Sherman, Z. Kostic, X. Gu, H. Krishnaswamy, S. Maheshwari, P. Skrimponis, and C. Gutterman, "Challenge: COSMOS: A City-Scale Programmable Testbed for Experimentation with Advanced Wireless," in *Proc. ACM MobiCom'20 (to appear)*, 2020, **acceptance rate 17.3% (24/139)**.

C16. A. Nagulu, A. Gaonkar, S. Ahasan, **T. Chen**, G. Zussman, and H. Krishnaswamy, "A Full-Duplex Receiver Leveraging Multiphase Switched-Capacitor-Delay based Multi-Domain FIR Filter Cancellers," in *Proc. IEEE Radio Frequency Integrated Circuits (RFIC) Symposium*, 2020.

C15. A. Minakhmetov, C. Gutterman, **T. Chen**, J. Yu, C. Ware, L. Iannone, D. Kilper, and G. Zussman, "Experiments on Cloud-RAN Wireless Handover using Optical Switching in a Dense Urban Testbed," in *Proc. IEEE/OSA OFC'20, paper Th2A.25*, 2020.

C14. J. Yu, C. Gutterman, A. Minakhmetov, M. Sherman, **T. Chen**, S. Zhu, G. Zussman, I. Seskar, and D. Kilper, "Dual Use SDN Controller for Management and Experimentation in a Field Deployed Testbed," in *Proc. IEEE/OSA OFC'20, paper T3J.3*, 2020.

C13. A. Nagulu, **T. Chen**, G. Zussman, and H. Krishnaswamy, "Non-Magnetic 180 nm SOI Circulator with Multi-Watt Power Handling Based on Switched Capacitor Clock Boosting," in *Proc. IEEE International Solid-State Circuits Conference (ISSCC)*, 2020.

C12. **T. Chen**, M. Baraani Dastjerdi, J. Zhou, H. Krishnaswamy, and G. Zussman, "Wideband Full-Duplex Wireless via Frequency-Domain Equalization: Design and Experimentation," in *Proc. ACM MobiCom'19*, 2019, **acceptance rate 19.0% (55/290)**.

C11. **T. Chen**, M. Baraani Dastjerdi, H. Krishnaswamy, and G. Zussman, "Wideband Full-Duplex Phased Array with Joint Transmit and Receive Beamforming: Optimization and Rate Gains," in *Proc. ACM MobiHoc'19*, 2019, **acceptance rate 23.7% (37/156)**.
Best Paper Finalist

C10. J. Yu, **T. Chen**, C. Gutterman, S. Zhu, G. Zussman, I. Seskar, and D. Kilper, "COSMOS: Optical Architecture and Prototyping," in *Proc. IEEE/OSA OFC'19, paper M3G.3*, 2019 (**invited paper**).

C9. A. Nagulu, **T. Chen**, G. Zussman, and H. Krishnaswamy, "A Full-Duplex Radio Using a CMOS Integrable Circulator Achieving +95 dB Overall SIC," in *Proc. IEEE APS-URSI'19*, 2019 (**invited paper**).

C8. **T. Chen**, J. Diakonikolas, J. Ghaderi, and G. Zussman, "Fairness and Delay in Heterogeneous Half- and Full-Duplex Wireless Networks," in *Proc. Asilomar Conference on Signals, Systems, and Computers*, 2018 (**invited paper**).

C7. **T. Chen**, J. Diakonikolas, J. Ghaderi, and G. Zussman, "Hybrid Scheduling in Heterogeneous Half- and Full-Duplex Wireless Networks," in *Proc. IEEE INFOCOM'18*, 2018, **acceptance rate 19.2% (308/1,606)**.

C6. M. Baraani Dastjerdi, N. Reiskarimian, **T. Chen**, G. Zussman, and H. Krishnaswamy, "Full Duplex Circulator-Receiver Phased Array Employing Self-Interference Cancellation via Beamforming," in *Proc. IEEE Radio Frequency Integrated Circuits (RFIC) Symposium*, 2018.

C5. M. Baraani Dastjerdi, **T. Chen**, N. Reiskarimian, G. Zussman, and H. Krishnaswamy, "Self-Interference Cancellation via Beamforming in an Integrated Full Duplex Circulator-Receiver Phased Array," in *Proc. IEEE SPCOM'18*, 2018 (**invited paper**).

C4. **T. Chen**, J. Ghaderi, D. Rubenstein, and G. Zussman, "Maximizing Broadcast Throughput Under Ultra-Low-Power Constraints," in *Proc. ACM CoNEXT'16*, 2016, **acceptance rate 17.6% (35/199)**.
Best Paper Award

C3. H. Krishnaswamy, G. Zussman, J. Zhou, J. Marasevic, T. Dinc, N. Reiskarimian, and **T. Chen**, "Full-Duplex in a Hand-held Device - From Fundamental Physics to Complex Integrated Circuits, Systems and Networks: An Overview of the Columbia FlexICoN project," in *Proc. Asilomar Conference on Signals, Systems, and Computers*, 2016 (**invited paper**).

C2. R. Margolies, G. Grebla, **T. Chen**, D. Rubenstein, and G. Zussman, "Panda: Neighbor Discovery on a Power Harvesting Budget," in *Proc. IEEE INFOCOM'16*, 2016, **acceptance rate 18.3% (300/1,644)**.

C1. **T. Chen**, S. Zhou, W. Chen, and Z. Niu, "Power Control Policies for a Wireless Link with Energy Harvesting Transmitter and Receiver," in *Proc. IEEE WiOpt'14*, 2014, **acceptance rate 28.7% (48/167)**.

Journals

J10. **T. Chen**, M. Baraani Dastjerdi, J. Zhou, H. Krishnaswamy, and G. Zussman, "Wideband Full-Duplex Wireless via Frequency-Domain Equalization: Design and Experimentation," *submitted*, 2019.

J9. **T. Chen**, M. Baraani Dastjerdi, H. Krishnaswamy, and G. Zussman, "Wideband Full-Duplex Phased Array with Joint Transmit and Receive Beamforming: Optimization and Rate Gains," *submitted*, 2019.

J8. M. Baraani Dastjerdi, **T. Chen**, N. Reiskarimian, G. Zussman, and H. Krishnaswamy, "Analysis and Design of Integrated Full Duplex Circulator-Receiver Phased Array Achieving Self-Interference Cancellation via Beamforming," *submitted*, 2019.

J7. J. Du, D. Chizhik, R. Valenzuela, R. Feick, G. Castro, M. Rodriguez, **T. Chen**, M. Kohli, and G. Zussman, "Directional Measurements in Urban Street Canyons from Macro Rooftop Sites at 28 GHz for 90% Outdoor Coverage," *under revision*, 2019.

J6. **T. Chen**, J. Diakonikolas, J. Ghaderi, and G. Zussman, "Hybrid Scheduling in Heterogeneous Half- and Full-Duplex Wireless Networks," *IEEE/ACM Transactions on Networking (to appear)*, 2020.

J5. N. Reiskarimian, T. Dinc, J. Zhou, **T. Chen**, M. Baraani Dastjerdi, J. Diakonikolas, G. Zussman, and H.Krishnaswamy, "A One-Way Ramp to a Two-Way Highway: Integrated Magnetic-Free Non-Reciprocal Antenna Interfaces for Full Duplex Wireless," *IEEE Microwave Magazine*, vol. 20, no. 2, pp. 56-75, Feb. 2019 (**invited paper**).

J4. **T. Chen**, J. Ghaderi, D. Rubenstein, and G. Zussman, "Maximizing Broadcast Throughput Under Ultra-Low-Power Constraints," *IEEE/ACM Transactions on Networking*, vol. 26, no. 2, pp. 779-792, Apr. 2018.

J3. J. Zhou, N. Reiskarimian, J. Marasevic, T. Dinc, **T. Chen**, G. Zussman, and H. Krishnaswamy, "Integrated Full Duplex Radios," *IEEE Communications Magazine*, vol. 55, no. 4, pp. 142-151, Apr. 2017 (**invited paper**).

J2. R. Margolies, G. Grebla, **T. Chen**, D. Rubenstein, and G. Zussman, "Panda: Neighbor Discovery on a Power Harvesting Budget," *IEEE Journal on Selected Areas in Communications, Series on Green Communications and Networking*, vol. 34, no. 12, pp. 3606-3619, Dec. 2016.

J1. S. Zhou, **T. Chen**, W. Chen, and Z. Niu, "Outage Minimization for a Fading Wireless Link with Energy Harvesting Transmitter and Receiver," *IEEE Journal on Selected Areas in Communications, Special Issue on Wireless Communications Powered by Energy Harvesting and Wireless Energy Transfer*, vol. 33, no. 3, pp. 496-511, Mar. 2015.

Book Chapters

B1. **T. Chen***, J. Zhou*, G. Zussman$^{\#}$, and H. Krishnaswamy$^{\#}$, "Integrated Full-Duplex Radios: System Concepts, Implementations, and Experimentation," book chapter in *Full-Duplex Communications for Future Wireless Networks (to appear)*, Springer, 2020 (**invited paper**). (* and $^{\#}$ indicate equal contributors)

Patents

Pa1. D. Rubenstein, G. Zussman, J. Ghaderi, R. Margolies, **T. Chen**, G. Grebla, "Systems and Methods for Throughput Enhancement Among Ultra-Low power Wireless Network Devices," U.S. Patent US 10,200,956 B2, Feb. 2019.

Workshops

W6. **T. Chen**, M. Kohli, T. Dai, A. D. Estigarribia, D. Chizhik, J. Du, R. Feick, R. Valenzuela, and G. Zussman, "28 GHz Channel Measurements in the COSMOS Testbed Deployment Area," in *Proc. ACM MobiCom'19 Workshop on Millimeter-Wave Networks and Sensing Systems (mmNets)*, 2019.

W5. **T. Chen**, J, Welles, M. Kohli, M. Baraani Dastjerdi, J. Kolodziejski, M. Sherman, I. Seskar, H. Krishnaswamy, and G. Zussman, "Experimentation with Full-Duplex Wireless in the COSMOS Testbed," in *Proc. IEEE ICNP'19 Workshop on Midscale Education and Research Infrastructure and Tools (MERIT)*, 2019.

W4. C. Gutterman, A. Minakhmetov, J. Yu, M. Sherman, **T. Chen**, S. Zhu, I. Seskar, D. Raychaudhuri, D. Kilper, and G. Zussman, "Programmable Optical x-Haul Network in the COSMOS Testbed," in *Proc. IEEE ICNP'19 Workshop on Midscale Education and Research Infrastructure and Tools (MERIT)*, 2019.

W3. A. Nagulu, **T. Chen**, G. Zussman, and H. Krishnaswamy, "A Single Antenna Full-Duplex Radio Using a Non-Magnetic, CMOS Circulator with In-built Isolation Tuning," in *Proc. IEEE ICC'19 Workshop on Full-Duplex Communications for Future Wireless Networks*, 2019 (**invited paper**).

W2. **T. Chen**, J. Ghaderi, D. Rubenstein, and G. Zussman, "Performance Evaluation of Energy-Constrained Broadcast (EconCast) in Wireless Networks," in *Proc. IEEE WCNC'17 Workshop on Energy Harvesting and Remotely Powered Wireless Communications for the IoT*, 2017 (**invited paper**).

W1. J. Marasevic, **T. Chen**, J. Zhou, N. Reiskarimian, H. Krishnaswamy, and G. Zussman, "Full-Duplex Wireless: Algorithms and Rate Improvement Bounds for Integrated Circuit Implementations," in *Proc. ACM HotWireless'16*, 2016 (**invited paper**).

Demonstrations and Posters (Peer Reviewed)

DP5. **T. Chen**, M. Baraani Dastjerdi, J. Welles, J. Zhou, H. Krishnaswamy, and G. Zussman, "Poster: Enabling Wideband Full-Duplex Wireless Frequency-Domain Equalization," in *Proc. ACM MobiCom'19*, 2019.
ACM MobiCom Student Research Competition (SRC) Winner - First Place

DP4. **T. Chen**, M. Baraani Dastjerdi, G. Farkash, J. Zhou, H. Krishnaswamy, and G. Zussman, "Demo Abstract: Open-Access Full-Duplex Wireless in the ORBIT Testbed," in *Proc. IEEE INFOCOM'18*, 2018.

DP3. **T. Chen**, J. Zhou, M. Baraani Dastjerdi, J. Diakonikolas, H. Krishnaswamy, and G. Zussman, "Demo Abstract: Full-Duplex with a Compact Frequency Domain Equalization-based RF Canceller," in *Proc. IEEE INFOCOM'17*, 2017.

DP2. **T. Chen**, G. Chen, S. Jain, R. Margolies, G. Grebla, D. Rubenstein, and G. Zussman, "Demo Abstract: Power-Aware Neighbor Discovery for Energy Harvesting Things," in *Proc. ACM SenSys'16*, 2016.

DP1. **T. Chen**, J. Zhou, N. Grimwood, R. Fogel, J. Marasevic, H. Krishnaswamy, and G. Zussman, "Demo: Full-Duplex Wireless based on a Small-Form-Factor Analog Self-Interference Canceller," in *Proc. ACM MobiHoc'16*, 2016.

Technical Reports

Tr2. J. Du, D. Chizhik, R. Valenzuela, R. Feick, G. Castro, M. Rodriguez, **T. Chen**, M. Kohli, and G. Zussman, "Directional Measurements in Urban Street Canyons from Macro Rooftop Sites at 28 GHz for 90% Outdoor Coverage," *arXiv preprint*: 1908.00512v2 [eess.SP], Aug. 2019.

Tr1. **T. Chen**, M. Baraani Dastjerdi, G. Farkash, J. Zhou, H. Krishnaswamy, and G. Zussman, "Open-Access Full-Duplex Wireless in the ORBIT Testbed," *arXiv preprint*: 1801.03069v2 [cs.NI], May 2018.

RESEARCH EXPERIENCE

2014–Present **Wireless & Mobile Networking (WiMNet) Lab**, Columbia University

- Design and implement single- and multi-antenna full-duplex radios grounded in *compact integrated circuit (IC)* implementations using USRP software-defined radios. Develop and evaluate the performance of efficient Physical and medium access control (MAC) layer algorithms for full-duplex networks. Gen-2 and Gen-1 full-duplex radios are integrated in the open-access COSMOS and ORBIT testbeds and are the *world's first remotely-accessible full-duplex radios* that enable research in this area. This work is within the **F**ull-Dup**lex** Wireless: From **I**ntegrated **C**ircuits t**o** **N**etworks (FlexICoN) project and in collaboration with Prof. Harish Krishnaswamy's group. The design of MAC layer algorithms is in collaboration with Prof. Javad Ghaderi.
- Develop and implement a programmable optical-wireless testbed that integrates software-defined radios with edge cloud networks for C-RAN applications. The testbed utilizes optical switching controlled by a software-defined networking (SDN) controller to stream radio signals through real NYC multi-hop dark fiber network for real-time remote processing. Develop dynamic scheduling and resource allocation algorithms to optimize the system performance. This work is within the **C**loud Enhanced **O**pen **S**oftware Defined **MO**bile Wireless Testbed for City-**S**cale Deployment (COSMOS) project and is in collaboration with WINLAB at Rutgers University and Prof. Dan Kilper's group at the University of Arizona.
- Developed and analyzed centralized and distributed algorithms for neighbor discovery and broadcast throughput maximization in ultra-low-power networks, in which devices are powered by energy harvesting. Applications include object tracking and monitoring, manufacturing, and Internet-of-Things (IoT). Implemented and evaluated algorithms using both a customized simulator and a testbed composed of light energy harvesting transceivers. This work is within the **En**ergy **H**arvesting **A**ctive **N**etworked **T**ag**s** (EnHANTs) project and in collaboration with Prof. Dan Rubenstein and Prof. Javad Ghaderi.

Summer 2018 **Wireless Access Lab**, Nokia Bell Labs (Mentors: Jinfeng Du, Dmitry Chizhik, Reinaldo Valenzuela)

- Channel measurements and modeling, and performance analysis of 28 GHz millimeter-wave networks in dense urban canyon environments.

2012–2014 **Network Integration for Ubiquitous Linkage and Broadband (NiuLab)**, Tsinghua University

- Designed and analyzed optimal power control policies which minimize the outage probability for a wireless communication link with energy harvesting transmitter and receiver.

Summer 2013 **Wireless & Mobile Networking (WiMNet) Lab**, Columbia University

- Developed ultra-low-power MSP430 microcontroller-based active tags and implemented efficient sensing and data forwarding methods for the **En**ergy **H**arvesting **A**ctive **N**etworked **T**ag**s** (EnHANTs) project.

GRANT PREPARATION

Facebook Fellowship 2019—2021, Facebook Inc., "Algorithms and Experimentation for Future Wireless Networks: From Full-Duplex to Optical x-Haul" (amount awarded: annual tuition of $25,000 and stipend of $37,000, and $5,000 in conference travel support).
Contribution: I envisioned and wrote this proposal.

NSF-BSF CNS 2019—2022, National Science Foundation and US-Israel Binational Science Foundation, "CNS Core: Small: Improving Wireless Networks Robustness via Weather-Sensitive Predictive Management" (amount awarded: $580,774).
Contribution: Assisted PIs Prof. Gil Zussman and Prof. Hagit Messer in writing and preparing the grant proposal.

AT&T VURI 2019, AT&T Labs Research Virtual University Research Initiative (VURI) Award, "Facilitating Safe and Smooth Traffic using 5G Capabilities in Metro Areas" (amount awarded: $20,000).
Contribution: Assisted PIs Prof. Gil Zussman and Prof. Zoran Kostic in writing and preparing the grant proposal.

NI Research 2018, National Instruments, "Academic Research Grant: Enabling Wideband Compact Full-Duplex Wireless" (amount awarded: $2,000).
Contribution: I envisioned and wrote this proposal.

NI Research 2017, National Instruments, "Academic Research Grant: Full-Duplex Wireless: From Integrated Circuits to Networks" (amount awarded: $2,000).
Contribution: I envisioned and wrote this proposal.

NSF EAGER 2016—2019, National Science Foundation, "EAGER: Collaborative Research: Lighting a Dark Fiber Experimental Research Network in Harlem" (amount awarded: $356,000).
Contribution: Assisted PIs Prof. Gil Zussman and Prof. Dan Kilper in writing and preparing the grant proposal.

NSF EARS 2015—2020, National Science Foundation, "EARS: Cross Layering in Full Duplex - from Integrated Circuits to Networking" (amount awarded: $618,000).
Contribution: Assisted PIs Prof. Gil Zussman, Prof. Harish Krishnaswamy, and Prof. Yuan Zhong in writing and preparing the grant proposal.

Travel Grants ACM MobiCom 2019, IEEE ICNP 2019, ACM MobiHoc 2019, 6th Heidelberg Laureate Forum (the SkyLabs grant), NI Week 2017, ACM CoNEXT 2016, ACM MobiCom 2016, ACM MobiHoc 2016

MENTORING AND ADVISING

Master Students Guanxuan Li (2019, currently at Facebook)
Shounak Roy (2019, currently at TSMC America)
Shanglin Guo (Spring 2019)
Siao-Ting Wang (2018–2019, currently at Amazon)
Guy Farkash (2017–2018, currently at Knaq, **EE M.S. Research Award**) [DP4], [Tr1]
Steven Alfano (2016–2017, currently at Wolverine Trading, **EE M.S. Research Award**)
Rel Fogel (2015–2016, currently at Front Gate Tickets) [DP1]
Rama Kompella (Spring 2015)

Undergraduate Students Shaokai Jerry Lin (2020–Present)
Angel Daniel Estigarribia (2019–Present) [W6]
Tianyi Jason Dai (2019–Present) [W6]
Kimberly Santiago (2018–2019, currently at LinkedIn)
Jackson Welles (2018–2019, **EE Undergraduate Research Award**) [W5], [DP5]
Jenny Li (2017–2019)
Rodda John (Fall 2017)
Andy Lianghua Xu (Fall 2017, currently at Facebook)
Gregory Chen (Spring 2016, currently at Bloomberg LP) [DP2]
Nicole Grimwood (2015–2016, currently at Cohere Tech., **EE Undergraduate Research Award**) [DP1]
Saahil Jain (2015–2016, currently at Microsoft) [DP2]
James Thompson (2015–2016, currently at Lockheed Martin)

Visiting Students Shiraz Bendor (Summer 2019, Cresskill High School)
Fan Yi (Summer 2017, Shanghai Jiao Tong University, China, to start Ph.D. at Princeton CS)
Jinhui Song (Summer 2017, Tsinghua University, China, currently a Ph.D. student at UIUC ECE)
Aishwarya Rajen (Summer 2017, Anna University, India, currently an M.S. student at UT Austin ECE)
Alexandre Simoes (Summer 2015, Universidade de Sao Paulo, Brazil)

TEACHING EXPERIENCE

Teaching Assistant, **Columbia University**, New York, NY

Summer 2018	Computer Networks (CSEE S4119)
Spring 2018	Large Data Stream Processing (ELEN E6889)
Fall 2017	Wireless & Mobile Networking I (ELEN E6950)
Summer 2017	Computer Networks (CSEE S4119)
Spring 2017	Computer Networks (CSEE S4119)
Fall 2016	Wireless & Mobile Networking I (ELEN E6950)
Spring 2016	Wireless & Mobile Networking II (ELEN E6951)
Spring 2015	Wireless Communications (ELEN E4703)

Course Manager, **Columbia University**, New York, NY

Summer 2019	Computer Networks (CSEE W4119, CVN [Columbia Video Network])
Summer 2018	Computer Networks (CSEE S4119, CVN)
Fall 2017	Wireless & Mobile Networking I (ELEN E6950, CVN)
Summer 2017	Computer Networks (CSEE S4119, CVN)
Fall 2016	Wireless & Mobile Networking I (ELEN E695, CVN)
Spring 2015	Wireless Communications (ELEN E4703, CVN)

PROFESSIONAL ACTIVITIES

Organizing Committee	General Chair, IEEE DySPAN Workshop on mmWave Communications and Networks 2019 Local Arrangements Chair, ACM SenSys/BuildSys 2019
Technical Program Committee	IEEE Future Networking Workshop for 5G and Beyond Testbed and Trials 2019 ACM MobiCom S^3 Workshop 2016
Journal Reviewer	IEEE/ACM Transactions on Networking (TON) 2019, 2018 IEEE Transactions on Communications (TCOM) 2018 IEEE Transactions on Wireless Communications (TWC) 2020 IEEE Communications Magazine 2018, 2017 IEEE Communications Letters 2017 IEEE Microwave Magazine 2017 Elsevier Physical Communication 2017 ACM Transactions on Embedded Computing Systems (TECS) 2016 ACM Transactions on Sensor Networks (TOSN) 2015
Conference Reviewer	ACM MobiCom 2018, 2016 ACM MobiHoc 2020, 2018, 2017, 2016, 2015 ACM SIGMETRICS 2019, 2018, 2017, 2016, 2015 IFIP WD 2016 IEEE ICC 2016, 2015 IEEE VTC 2020-Spring
Volunteer	IFIP Performance 2017, New York, NY ACM MobiCom 2016, New York, NY ACM MobiHoc 2015 TPC Meeting, New York, NY IEEE ICCC 2012, Beijing, China
Outreach	Kids Week at Intrepid: Full STEAM Ahead, 2020 Columbia Inside Engineering Labs program, 2019 Columbia Girls' Science Day, 2019 Class visit for underrepresented high school seniors at CE^2 (Columbia Engineering Experience), 2019 COSMOS Summer Research Experiences for Teachers (RET) program, 2019, 2018 Demo and poster at the Silicon Harlem Annual Tech Conference, 2019, 2018 Science Expo at The School at Columbia University, 2018 High school outreach at the Manhattan Center for Science and Mathematics in East Harlem, 2015

Talks, Demos, and Additional Presentations

(In addition to conference and workshop presentations)

Spring 2020 "Cross-Layering in Future Wireless Networks: From Compact Full-Duplex Radios to City-Scale Experimentation"
- University of Michigan, Department of Electrical and Computer Engineering
- Carnegie Mellon University, Department of Electrical and Computer Engineering
- University of Minnesota Twin Cities, Department of Electrical and Computer Engineering
- Duke University, Department of Electrical and Computer Engineering
- Cornell Tech and Cornell University, School of Electrical and Computer Engineering
- Columbia University, Data Science Institute Sense, Collect, and Move Data Seminar

11/2019 "Experimentation with the City-Scale Programmable COSMOS Testbed"
ACM SenSys'19 Tutorial, New York, NY (tutorial and demo).

10/2019 "Experimentation with the City-Scale Programmable COSMOS Testbed"
ACM MobiCom'20 Tutorial, Los Cabos, Mexico (tutorial and demo).

10/2019 "The COSMOS Education Toolkit and Open-Access Full-Duplex Wireless in the COSMOS Testbed"
6th Silicon Harlem Annual Tech Conference, New York, NY, (**invited demo**).

09/2019 "Algorithms and Experimentation for Future Wireless Networks: From Full-Duplex to Optical x-Haul"
Facebook Annual Fellow Summit, Menlo Park, CA, (**invited poster**).

07/2019 "The COSMOS Wireless Testbed and Experimentation with Compact Full-Duplex Wireless"
Optical Telecommunications Research Group, Telecom Paris, Paris, France (opt-telecom seminar).

07/2019 "COSMOS – A Platform for Advanced Wireless Research (PAWR)"
ACM MobiHoc'19 Workshop on the Frontiers of Networks, Catania, Italy (**invited talk**).

06/2019 "Algorithms and Experimentation for Future Wireless Networks: From Full-Duplex to Optical x-haul"
Facebook Networking and Communications Faculty Summit, Fremont, CA (**invited talk**).

06/2019 "Real-Time Full-Duplex Wireless using an Integrated CMOS Circulator"
IEEE IMS'19, Boston, MA (demo).

05/2019 "The COSMOS Wireless Testbed: Experimenting with Next-Generation Wireless Technologies and Applications in Real-World City-Scale Environments"
Department of Electronic Engineering, Tsinghua University, Beijing, China (**invited talk**).

05/2019 "The COSMOS Wireless Testbed and Experimentation with Compact Full-Duplex Wireless"
Institute of Interdisciplinary Information Sciences, Tsinghua University, Beijing, China (**invited talk**).

05/2019 "Open-Access Full-Duplex Wireless in the ORBIT/COSMOS Testbed"
COSMOS Experimenters Workshop, Rutgers University, NJ (tutorial and demo).

04/2019 "The COSMOS Wireless Testbed and Experimentation with Compact Full-Duplex Wireless"
Department of Computer Science and Engineering, University of California at Riverside, Riverside, CA.

04/2019 "Real-Time Full-Duplex Wireless using an Integrated CMOS Circulator"
Columbia Data Science Day, Columbia University, New York, NY (demo).

12/2018 "Fully-Integrated Non-Magnetic 180nm SOI Circulator"
DARPA MTO RF Showcase, Johns Hopkins University Applied Physics Lab, Laurel, MD (demo).

10/2018 "Open-Access Full-Duplex Wireless in the ORBIT Testbed"
5th Silicon Harlem Annual Tech Conference, New York, NY (**invited demo**).

09/2018 "Maximizing Broadcast Throughput under Ultra-Low-Power Constraints"
6th Heidelberg Laureate Forum, Heidelberg, Germany (poster-flash and poster).

09/2018 "Maximizing Broadcast Throughput under Ultra-Low-Power Constraints"
Department of Electrical and Computer Engineering, Technical University of Munich, Munich, Germany (**invited talk**).

09/2018 "Open-Access Full-Duplex Wireless in the ORBIT Testbed"
NYC Media Lab's Annual Summit, The New School, New York, NY (demo).
Creative Tech Award in Engineering

08/2018 "Maximizing Broadcast Throughput under Ultra-Low-Power Constraints"
Institute of Interdisciplinary Information Sciences, Tsinghua University, Beijing, China (**invited talk**).

08/2018 "Full-Duplex Wireless in Hand-Held Devices: From Circuits to Networks"
Department of Electronic Engineering, Tsinghua University, Beijing, China (**invited talk**).

07/2018 "The COSMOS Wireless Testbed and Experimentation with Compact Full-Duplex Wireless"
Nokia Bell Labs, Crawford Hill, NJ (**invited talk**).

06/2018 "Fully-Integrated Non-Magnetic 180nm SOI Circulator"
IEEE RFIC'18, Philadelphia, PA (demo).

04/2018 "Open-Access Full-Duplex Wireless in the ORBIT Testbed"
CATT Annual Research Review, NYU, Brooklyn, NY (**invited demo and poster**).

03/2018 "Open-Access Full-Duplex Wireless in the ORBIT Testbed"
Columbia Data Science Day, Columbia University, New York, NY (demo).

05/2017 "Full-Duplex Wireless: A Two-Way Road to 5G"
National Instruments NIWeek Academic Forum, Austin, TX (poster).

04/2017 "Full-Duplex MIMO Wireless: From IC Design to Networking"
Qualcomm Innovation Fellowship Final's Day, San Diego, CA (talk and poster).

04/2017 "Full-Duplex Wireless: A Two-Way Road to 5G"
Columbia Data Science Day, Columbia University, New York, NY (demo).

03/2017 "Full-duplex Wireless: Algorithms, Rate Improvement Bounds, and System Implementations"
WINLAB Workshop on Advanced Wireless Experimentation, Rutgers University, North Brunswick, NJ (**invited talk**).

09/2016 "Double-Talk: Full-Duplex Wireless for Next-Generation Communications"
NYC Media Lab's Annual Summit, Columbia University, New York, NY (demo).
Honorable Mention Award

04/2016 "A Self-Interference-Cancelling Full-Duplex Enabling Next-Generation Wireless Communications"
Columbia Data Science Day, Columbia University, New York, NY (demo).