

Carlee Joe-Wong

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Education

Ph.D. Applied and Computational Mathematics, Princeton University 2016
M.A. Applied and Computational Mathematics, Princeton University 2013
A.B. Mathematics, Princeton University (*magna cum laude*) 2011
Certificate in Applied and Computational Mathematics
Phi Beta Kappa Society

Professional Experience

Associate Professor of Electrical and Computer Engineering 2021–present
Robert E. Doherty Career Development Professorship 2021–2027
Assistant Professor 2016–2021
Carnegie Mellon University
External Consultant 2019–2020
KBR Wyle, NASA Ames Research Center
Co-Founder, Director of Research (2013–2014), and Consultant (2020–2021) 2012
DataMi, named a startup-to-watch by Forbes in 2014.

Honors and Awards

Department of Energy Early Career Research Program Award 2024
IEEE ICDCS Best Poster Award 2024
Optimal Variance-Reduced Client Sampling for Multiple Model Federated Learning
ACM/IEEE IPSN Best Poster Award 2023
Fair Training of Multiple Federated Learning Models on Resource Constrained Network Devices
CrossFL Workshop Best Poster Award 2022
Grey-Box Defense for Personalized Federated Learning
Elevated to IEEE Senior Member 2022
ACM SIGMETRICS Best Poster Award 2022
Correlated Combinatorial Bandits for Online Resource Allocation
Selected Participant in the US Frontiers of Engineering Conference 2021
National Academy of Engineering

ACM IPSN Best Research Artifact Award	2020
CollabAR: Edge-assisted Collaborative Image Recognition for Mobile Augmented Reality	
IEEE INFOCOM Distinguished TPC Member	2019–2021
ARO Young Investigator Award	2019
N2Women Rising Stars in Networking and Communications List	2018
NSF CAREER Award	2018
Porter Ogden Jacobus Fellowship	2015–2016
The fellowship, awarded to four students each year, is the highest honor awarded by the Graduate School at Princeton.	
INFORMS ISS Design Science Award	2014
For my research on smart data pricing.	
Artiman B.E.T.A. member	2014
I was one of 12 students invited to join the B.E.T.A. (Biology, Economics, Technology, Arts) network, which recognizes student innovators who have the potential to become entrepreneurs and founders.	
IEEE INFOCOM Best Paper Award	2012
Multi-Resource Allocation: Fairness-Efficiency Tradeoffs in a Unifying Framework	
National Defense Science and Engineering Graduate Fellowship (NDSEG)	2011 – 2013
National Science Foundation Graduate Fellowship (declined to accept NDSEG)	2011
Princeton Graduate School Centennial Fellowship	2011-2016
George B. Wood Legacy Junior Prize for the Class of 2011	2010
The prize, awarded annually to two students at the beginning of their senior year, recognizes an exceptional academic record as a junior at Princeton University.	

Teaching Experience

Introduction to Machine Learning for Engineers , CMU	2018–2025
New undergrad/M.S. course co-developed with Virginia Smith and Gauri Joshi; co-taught with Virginia Smith (Fall 2018), Yuejie Chi (Fall 2019, Summer 2020), Gauri Joshi (Spring and Summer 2020, Spring 2024 and 2025), Pulkit Grover (Spring 2021), and Guannan Qu (Spring 2023).	
Mathematical Foundations of Electrical Engineering , CMU	Spring 2018, Fall 2020–2024
Sophomore-level course, co-taught with Soumya Kar (2018), Franz Franchetti (2020, 2021), and Vijayakumar Bhagavatula (2022–2024).	
Network Economics and Resource Allocation , CMU	Fall 2016, 2017; Spring 2019
Ph.D.-level seminar course that I taught and developed.	
Networks: Friends, Money, and Bytes , Princeton University	Fall 2014
Assistant in Instruction for Prof. Mung Chiang.	
Mathematical Neuroscience , Princeton University	Fall 2012
Assistant in Instruction for Prof. Phil Holmes.	
Numerical Methods , Princeton University	Fall 2012
Assistant in Instruction for Prof. Bart Vandereycken.	

Mentoring Experience

Postdoctoral Scholars

Xutong Liu	CMU, 2024–present
Jingdi Chen	CMU, 2024–present
Marie T. Siew	CMU, 2021–2023
<i>Now Faculty Early Career Fellow at the Singapore University of Technology and Design.</i>	
Xiaoxi Zhang	CMU, 2017–2020
<i>Now Associate Professor in the School of Computer Science and Engineering at Sun Yat-Sen University.</i>	

Ph.D. Students

Hanqing Yang	CMU ECE, 2025–
Jong-Ik Park (co-advised with Gary Fedder)	CMU ECE, 2024–
Harry Jiang	CMU ECE, 2024–
Ishank Juneja (co-advised with Osman Yağan)	CMU ECE, 2023–
Baris Askin (co-advised with Gauri Joshi)	CMU ECE, 2022–
<i>Ben Cook Presidential Graduate Fellowship, 2023–2024</i>	
Baran Atalar	CMU ECE, 2022–
Tianshu Huang (co-advised with Anthony Rowe)	CMU ECE, 2021–
<i>ARCS Fellowship, The Heppner-Thier-Stover Named Award</i>	
Yi (Eve) Hu (co-advised with Bob Iannucci)	CMU ECE, 2019–
<i>Wei Shen and Xuehong Zhang Presidential Fellowship, 2023–2024</i>	
I-Cheng (Delphi) Lin (co-advised with Osman Yağan)	CMU ECE, 2019–
Yuhang Yao	CMU ECE, 2019–2024
<i>Lee Stanziale Ohana Fellowship, 2022–2023. Now Machine Learning Scientist at TensorOpera AI.</i>	
Taejin Kim	CMU ECE, 2018–2023
<i>Nicholas Minnici (E'59) Dean's Graduate Fellowship, 2022–2023. Now Machine Learning Research Engineer at CACI.</i>	
Jinhang Zuo	CMU ECE, 2017– 2022
<i>Postdoctoral Associate at Caltech and UMass-Amherst, now Assistant Professor of Computer Science at the City University of Hong Kong.</i>	
Yichen (Ethan) Ruan	CMU ECE, 2018–2022
<i>David Barakat and LaVerne Owen-Barakat and Ann and Peter McGuinn Fellowships, 2019–2020. Now Research Scientist at Meta.</i>	
Madhumitha Harishankar (co-advised with Patrick Tague)	CMU ECE, 2016–2020
<i>Now Co-Founder and CEO of Nume Crypto.</i>	
Yuxuan Jiang	CMU, visiting from HKUST, 2017–2018
<i>Now Senior Inventive Scientist at AT&T Labs.</i>	

Ph.D. Thesis Committees

Edward Andert	Arizona State ECEE, 2025
Eray Can Elumar	CMU ECE, 2025
Kyle Liang	CMU S3D, 2025

Jingdi Chen	GWU ECE, 2024
Charlie Hou	CMU ECE, 2024
Mansi Sood	CMU ECE, 2024
Weipeng (Steve) Zhuo	HKUST CSE, 2023
Yuezhou Liu	Northeastern ECE, 2023
Pablo Guarda	CMU CEE, 2023
Samarth Gupta	CMU ECE, 2022
Yang Li	CMU ECE, 2020
Parisa Rahimzadeh	CU Boulder CS, 2020
Nandi Zhang	CMU EPP, 2019
Rusheng Zhang	CMU ECE, 2019
Susu Xu	CMU CEE, 2019
Rongye Shi	CMU ECE, 2019
Hsu-Chieh Hu	CMU ECE, 2019
Xiaoli Wang	Princeton University EE, 2017

M.S. Independent Research

Jiajun Gu	CMU INI M.S. Thesis, 2024–present
Jiarui Li	CMU INI M.S. Thesis, 2023–2024
<i>Now a Ph.D. student at Michigan.</i>	
Shouxu Lin	CMU INI M.S. Thesis, 2021–2022
<i>Now a Ph.D. student at Cornell. Received the INI Outstanding Student Services Award–Research Assistant.</i>	
Harry Jiang	CMU ECE M.S. Thesis, 2020–2021
<i>Now a Ph.D. student at CMU ECE.</i>	

Alanis Zhao (Spring 2025), Ritvika Sonawane (Fall 2024 and Spring 2025), Yuan Li (Summer and Fall 2024), Blessed Guda (Spring 2024 to 2025), Siddharth Ambekar (Spring 2024 to 2025), Haoran Zhang (Spring 2024 to 2025), Shoba Arunasalam (Fall and Spring 2023), Xinyi Fan (Summer 2023 to Spring 2025), Zejun Gong (Fall 2023 and Spring 2024), Zekai Li (Spring 2023 to Spring 2024), Zimeng Pan (Fall 2023 and Spring 2024), Jong-Ik Park (Spring 2023 to 2024), Hanqing Yang (Fall 2023 to 2024), Jiayu Chang (Fall 2022), Shikhar Sharma (Fall 2022 to Fall 2023), Ziwei Zhu (Fall 2022), Mingyuan Ding (Summer 2022), Rahul Dharani (Spring 2022), Nikhil Madaan (Fall and Spring 2022), Shreya Shrivastava (Spring 2022), Carolene Siga (Spring 2022), Rituraj Singh (Spring 2022), Shubhranshu Singh (Fall and Spring 2022), Shreya Srinarasi (Spring 2022), Chaoran Zhang (Spring 2022), Chen Zhao (Spring 2022), Youjie Kang (Fall 2021), Karthik Pansetty (Fall 2021 and Spring 2022), Supreeth Bare (Summer and Fall 2021), Ziwen Zhao (Summer 2021), Prashanth Mogali (Spring 2021, *INI Outstanding Student Services Award–Research Assistant*), Zhengneng Chen (Fall 2020, Spring 2021), Zeyu Ma (Fall 2020), Xiong Zeng (Fall 2020), Chia-Kai Chang (Spring 2020), Xuan Chen (Spring and Fall 2020), Yucai Fan (Spring 2020), Bonan Jin (Spring 2020), Akansha Kalra (Spring 2020), Juntao Li (Spring 2020), Shu-Che Liang (Spring 2020), Siddharth Mehta (Spring 2020), Tom Yang (Spring 2020), Sweta Hari Kumar (Fall 2019), Gavin Lee (Fall 2019 and Spring 2020), Wanquan Wu (Fall 2019), Cheng-Hung Yao (Fall 2019), Pratyush Shandilya (Summer 2019), Satyavrat Wagle (Summer 2019), Akshay Bhaskar (Spring 2019), Jakob Cassiman (Spring 2019), Nithin Venkat Sonti (Spring 2019), Ye Li (Fall 2018), Fangjing Wu (Fall 2018), Jiawei Yang (Fall 2018), Serhan Oztekin (Spring 2018), Chenxi Wang (Fall 2017), Haoxiang Gao (Spring/Fall 2017), Yao Cai (Spring 2017), Jie Chen (Spring 2017), Vaishnavi Ramesh Jayaraman (Spring 2017), Takuma Oda (Spring 2017), Nagarjun Srinivasan (Spring 2017), Bingzhang Wu (Spring 2017)

Undergraduate Independent Research

Edward Zhang (Summer 2023 to Spring 2025), Gaeun Lee (Summer 2023), Yixin Yang (Spring 2023 to Spring 2024), Jerry Feng (Summer 2021), Mandy Hu (Fall 2022), Anushka Saxena (Spring 2022), Harshul Singh (Summer 2022), Aarushi Wadhwa (Spring 2020), Alanis Zhao (Fall 2022, Fall 2023, Spring 2024)

Publications

Books and Book Chapters

Y. Ruan, L. Zheng, M. Gorlatova, M. Chiang and **C. Joe-Wong**, The Economics of Fog Computing: Pricing Tradeoffs for Data Analytics, *Fog and Fogonomics: Challenges and Practices of Fog Computing, Networking, Strategy and Economics*, Wiley, 2020.

J. Chung, **C. Joe-Wong** and S. Ha, Extending the Cloud to Fog: Highly Available Elastic Fog, *Fog and Fogonomics: Challenges and Practices of Fog Computing, Networking, Strategy and Economics*, Wiley, 2020.

C. Joe-Wong, L. Zheng and J. Chen, Oligopoly Pricing, *Encyclopedia for Wireless Networks*, Springer, 2018.

C. Joe-Wong, L. Zheng, S. Ha, S. Sen, C. W. Tan and M. Chiang, Smart Data Pricing in 5G Systems, in *Key Technologies for 5G Wireless Systems*, Cambridge University Press, 2017.

C. Joe-Wong, S. Ha, Z. Liu, F. M. F. Wong and M. Chiang, Mind Your Own Bandwidth, in *Fog for 5G and IoT*, Wiley, 2017.

S. Sen, **C. Joe-Wong**, S. Ha and M. Chiang, Human Factors in Smart Data Pricing, in *Smart Data Pricing*, Wiley, 2014.

S. Sen, **C. Joe-Wong**, S. Ha and M. Chiang, eds., *Smart Data Pricing*, Wiley, 2014.

S. Sen, **C. Joe-Wong**, S. Ha and M. Chiang, Smart Data Pricing (SDP): Economic Solutions to Network Congestion, in *SIGCOMM eBook on Recent Advances in Networking*, Volume 1, 2013.

Journal Articles

M. Xiang, S. Ioannidis, E. Yeh, **C. Joe-Wong** and L. Su, Empowering Federated Learning with Implicit Gossiping: Mitigating Connection Unreliability Amidst Unknown and Arbitrary Dynamics, to appear in the *IEEE Transactions on Signal Processing*.

X. Dai, X. Liu, J. Zuo, H. Xie, **C. Joe-Wong** and J. C. S. Lui, Variance-Aware Bandit Framework for Dynamic Probabilistic Maximum Coverage Problem with Triggered or Self-Reliant Arms, to appear in the *IEEE/ACM Transactions on Networking*.

S. Lin, X. Zhang, Y. Li, **C. Joe-Wong**, J. Duan, D. Yu, Y. Wu and X. Chen, Online Management for Edge-Cloud Collaborative Continuous Learning: A Two-timescale Approach, *IEEE Transactions on Mobile Computing*, September 2024.

Y. Ruan, X. Zhang and **C. Joe-Wong**, How Valuable Is Your Data? Optimizing Device Recruitment in Federated Learning, *IEEE/ACM Transactions on Networking*, July 2024.

W. Liu, X. Zhang, J. Duan, **C. Joe-Wong**, Z. Zhou and X. Chen, DYNAMITE: Dynamic Interplay of Mini-Batch Size and Aggregation Frequency for Federated Learning with Static and Streaming Dataset, *IEEE Transactions on Mobile Computing*, November 2023.

M. Siew, S. Sharma, K. Guo, D. Cai, W. Wen, **C. Joe-Wong** and T. Q. S. Quek, Towards Effective Resource Procurement in MEC: a Resource Re-selling Framework, *IEEE Transactions on Services Computing*, October 2023.

X. Zhang, J. Zuo, Z. Huang, Z. Zhou, X. Chen and **C. Joe-Wong**, Learning with Side Information: Elastic Multi-resource Control for the Open RAN, *IEEE Journal on Selected Areas in Communications*, September 2023.

I.-C. Lin, **C. Joe-Wong** and O. Yağan, Dynamic Coupling Strategy for Interdependent Network Systems Against Cascading Failures, *IEEE Transactions on Network Science and Engineering*, February 2023.

R. Sahay, S. Nicoll, M. Zhang, T.-Y. Yang, **C. Joe-Wong**, K. A. Douglas and C. G. Brinton, Predicting Learning Interactions in Social Learning Networks: A Deep Learning Enabled Approach, *IEEE/ACM Transactions on Networking*, January 2023.

T. Kim, S. Sathyanarayana, S. Chen, Y. Im, X. Zhang, S. Ha and **C. Joe-Wong**, MoDEMS: Optimizing Edge Computing for User Mobility, *IEEE Journal on Selected Areas in Communications*, December 2022.

X. Zhang, S. Chen, Y. Zhang, Y. Im, M. Gorlatova, S. Ha and **C. Joe-Wong**, Optimal Network Protocol Selection for Competing Flows via Online Learning, *IEEE Transactions on Mobile Computing*, March 2022.

M. Khayatian, M. Mehrabian, E. Andert, R. Grimsley, K. Liang, Y. Hu, I. McCormack, **C. Joe-Wong**, J. Aldrich, B. Iannucci and A. Shrivastava, Plan B - Design Methodology for Cyber-Physical Systems Robust to Timing Failures, *ACM Transactions on Cyber-Physical Systems*, February 2022.

X. Zhang, J. Wang, L.-F. Lee, T. Yang, A. Kalra, G. Joshi and **C. Joe-Wong**, Machine Learning on Volatile Instances: Convergence, Runtime, and Cost Tradeoffs, *IEEE/ACM Transactions on Networking*, October 2021.

G. Lan, Z. Liu, Y. Zhang, T. Scargill, J. Stojkovic, **C. Joe-Wong** and M. Gorlatova, Edge-assisted Collaborative Image Recognition for Mobile Augmented Reality, *ACM Transactions on Sensor Networks*, June 2021.

S. Wang, Y. Ruan, Y. Tu, S. Wagle, C. G. Brinton and **C. Joe-Wong**, Network-Aware Optimization of Distributed Learning for Fog Computing, *IEEE/ACM Transactions on Networking*, May 2021.

Y. Jiang, M. Shahrad, D. Wentzlaff, D. H. K. Tsang and **C. Joe-Wong**, Burstable Instances for Clouds: Performance Modeling, Equilibrium Analysis, and Revenue Maximization, *IEEE/ACM Transactions on Networking*, August 2020.

S. Liu, **C. Joe-Wong**, J. Chen, C. G. Brinton, C. W. Tan and L. Zheng, Economic Viability of a Virtual ISP, *IEEE/ACM Transactions on Networking*, May 2020.

X. Chen*, S. Xu*, J. Han, H. Fu, X. Pi, **C. Joe-Wong**, Y. Li, L. Zhang, H. Noh and P. Zhang, PAS: Prediction Based Actuation System for City-scale Ride Sharing Vehicular Mobile Crowdsensing, *IEEE Internet of Things Journal*, January 2020.

*These authors contributed equally to the paper.

C. Joe-Wong, T.-S. Ho and H. Rabitz, Assessing the Structure of Classical Molecular Optimal Control Landscapes, *Chemical Physics*, November 2019.

S. Sen, **C. Joe-Wong**, S. Ha and M. Chiang, Time-Dependent Pricing for Multimedia Data Traffic: Analysis, Systems, & Trials, *IEEE Journal on Selected Areas in Communications*, June 2019.

M. Harishankar, S. Pilaka, P. Sharma, N. Srinivasan, **C. Joe-Wong** and P. Tague, Procuring Spontaneous Session-Level Resource Guarantees for Real-Time Applications: An Auction Approach, *IEEE Journal on Selected Areas in Communications*, June 2019.

S. Xu*, X. Chen*, **C. Joe-Wong**, P. Zhang and H. Noh, iLoCuS: Incentivizing Vehicle Mobility to Optimize Sensing Distribution in Crowd Sensing, *IEEE Transactions on Mobile Computing*, May 2019.

*These authors contributed equally to the paper.

C. Ruiz, S. Pan, A. Bannis, X. Chen, **C. Joe-Wong**, H. Y. Noh and P. Zhang, IDrone: Robust Drone Identification through Motion Actuation Feedback, *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, formerly *ACM UbiComp*, 2018.

C. Joe-Wong and S. Sen, Harnessing the Power of the Cloud: Revenue, Fairness, and Cloud Neutrality, *Journal of Management and Information Systems*, March 2018.

C. Joe-Wong, S. Sen and S. Ha, Sponsoring Mobile Data: Analyzing the Impact on Internet Stakeholders, *IEEE/ACM Transactions on Networking*, May 2018.

L. Zheng, **C. Joe-Wong**, C. W. Tan, S. Ha and M. Chiang, Customized Data Plans for Mobile Users: Feasibility and Benefits of Data Trading, *IEEE Journal of Selected Areas in Communications*, May 2017.

K. Shin, **C. Joe-Wong**, S. Ha, Y. Yi, I. Rhee and D. Reeves, T-Chain: A General Incentive Scheme for Cooperative Computing, *IEEE/ACM Transactions on Networking*, April 2017.

T.-Y. Yang, C. G. Brinton, **C. Joe-Wong** and M. Chiang, Behavior-Based Grade Prediction for MOOCs via Time Series Neural Networks, *IEEE Journal of Special Topics in Signal Processing*, March 2017.

Y. Im, **C. Joe-Wong**, S. Ha, S. Sen, T. Kwon and M. Chiang, AMUSE: Empowering Users for Cost-Aware Offloading with Throughput-Delay Tradeoffs, *IEEE Transactions on Mobile Computing*, May 2016.

S. Sen, **C. Joe-Wong**, S. Ha and M. Chiang, Smart Data Pricing: Using Economics to Manage Network Congestion, *Communications of the ACM*, December 2015.

C. Joe-Wong, I. Kamitsos and S. Ha, Inter-Datacenter Job Routing and Scheduling with Variable Costs and Deadlines, *IEEE Transactions on Smart Grid*, November 2015.

C. Joe-Wong, T.-S. Ho and H. Rabitz, On Choosing the Form of the Objective Functional for Optimal Control of Molecules, *Journal of Mathematical Chemistry*, September 2015 (letter to the editor).

C. Joe-Wong, T.-S. Ho, H. Rabitz and R. Wu, Topology of Classical Molecular Optimal Control Landscapes for Multi-Target Objectives, *Journal of Chemical Physics*, April 2015.

C. Joe-Wong, S. Sen and S. Ha, Offering Supplementary Network Technologies: Adoption Behavior and Offloading Benefits, *IEEE/ACM Transactions on Networking*, April 2015.

S. Sen, **C. Joe-Wong**, S. Ha and M. Chiang, Pricing Data: A Look at Past Proposals, Current Plans, and Future Trends, *ACM Computing Surveys*, February 2014.

C. Joe-Wong, S. Sen, T. Lan and M. Chiang, Multi-Resource Allocation: Fairness-Efficiency Tradeoffs in a Unifying Framework, *IEEE/ACM Transactions on Networking*, December 2013.

C. Joe-Wong, T.-S. Ho, R. Long, H. Rabitz and R. Wu, Topology of Classical Molecular Optimal Control Landscapes in Phase Space, *Journal of Chemical Physics*, March 2013.

A. M. S. Palanca, S.-L. Lee, L. E. Yee, **C. Joe-Wong**, L. A. Trinh, E. Hiroyasu, M. Husain, S. E. Fraser, M. Pellegrini and A. Sagasti, New Transgenic Reporters Identify Somatosensory Neuron Subtypes in Larval Zebrafish, *Developmental Neurobiology*, February 2013.

S. Sen, **C. Joe-Wong**, S. Ha and M. Chiang, Incentivizing Time-Shifting of Data: A Survey of Time-Dependent Pricing for Internet Access, *IEEE Communications Magazine*, November 2012.

C. Joe-Wong, S. Sen, S. Ha and M. Chiang, Optimized Day-Ahead Pricing for the Smart Grid with Device-Specific Scheduling Flexibility, *IEEE Journal on Selected Areas in Communications*, July 2012.

Conference Papers

T. Huang, A. Ramesh, E. Ruppel, N. Pereira, A. Rowe and **C. Joe-Wong**, Uncertainty and Interference-aware Runtime Prediction for Edge Computing with Conformal Matrix Completion, to appear in *MLSys 2025*.

B. Askin, P. Sharma, G. Joshi and **C. Joe-Wong**, Federated Communication-Efficient Multi-Objective Optimization, to appear in *AISTATS 2025*.

J.-I. Park, S. Pranav, J. M. F. Moura and **C. Joe-Wong**, FedBAF: Federated Learning Aggregation Biased by a Foundation Model, to appear in *AISTATS 2025*.

I. Juneja, **C. Joe-Wong** and O. Yağan, Pairwise Elimination with Instance-Dependent Guarantees for Bandits with Cost Subsidy, to appear in *ICLR 2025*.

B. Atalar and **C. Joe-Wong**, Neural Combinatorial Clustered Bandits for Recommendation Systems, *AAAI 2025*.

J.-I. Park and **C. Joe-Wong**, FedTLU: Federated Learning with Targeted Layer Updates, to appear in *IEEE ICASSP 2025*.

J. Chen, H. Zhou, Y. Mei, **C. Joe-Wong**, G. Adam, N. Bastian and T. Lan, RGMDT: Return-Gap-Minimizing Decision Tree Extraction in Non-Euclidean Metric Space, *NeurIPS 2024*.

M. Xiang, S. Ioannidis, E. Yeh, **C. Joe-Wong** and L. Su, Efficient Federated Learning against Heterogeneous and Non-stationary Client Unavailability, *NeurIPS 2024*.

X. Zhang, Z. Huang, E. Taga, **C. Joe-Wong**, S. Oymak and J. Chen, Efficient Contextual LLM Cascades through Budget-Constrained Policy Learning, *NeurIPS 2024*.

J.-I. Park and **C. Joe-Wong**, Federated Learning with Flexible Architectures, *ECML-PKDD 2024*.

S. Han, B. Buyukates, Z. Hu, H. Jin, W. Jin, L. Sun, X. Wang, W. Wu, C. Xie, Y. Yao, K. Zhang, Q. Zhang, Y. Zhang, **C. Joe-Wong**, S. Avestimehr, and C. He, FedSecurity: A Benchmark for Attacks and Defenses in Federated Learning and Federated LLMs, *ACM KDD 2024 Applied Data Science Track*.

B. Askin, P. Sharma, **C. Joe-Wong** and G. Joshi, FedAST: Federated Asynchronous Simultaneous Training, *UAI 2024*.

T. Kim, J. Zuo, X. Zhang and **C. Joe-Wong**, Edge-MSL: Split Learning on the Mobile Edge via Multi-Armed Bandits, *IEEE INFOCOM 2024*.

Y. Li, L. Su, **C. Joe-Wong**, E. Yeh and S. Ioannidis, Distributed Experimental Design Networks, *IEEE INFOCOM 2024*.

J. Chen, T. Lan and **C. Joe-Wong**, RGMComm: Return Gap Minimization via Discrete Communications in Multi-Agent Reinforcement Learning, *AAAI 2024*.

M. M. Kamani, Y. Yao, H. Lyu, Z. Cheng, L. Chen, L. Li, **C. Joe-Wong** and J. Luo, Wyze Rule: Federated Rule Dataset for Rule Recommendation Benchmarking, *NeurIPS 2023*, Datasets and Benchmarks track.

Y. Yao, W. Jin, S. Ravi and **C. Joe-Wong**, FedGCN: Convergence and Communication Tradeoffs in Federated Training of Graph Convolutional Networks, *NeurIPS 2023*. Preliminary version appeared in *FedGraph 2022*.

Y. Liu, L. Su, **C. Joe-Wong**, S. Ioannidis, E. Yeh and M. Siew, Cache-Enabled Federated Learning Systems, *ACM MobiHoc 2023*.

S. Lin, X. Zhang, Y. Li, **C. Joe-Wong**, J. Duan and X. Chen, EdgeC3: Online Management for Edge-Cloud Collaborative Continuous Learning, *IEEE SECON 2023*.

Y. Hu, J. Zuo, B. Iannucci and **C. Joe-Wong**, Intelligent Communication Planning for Constrained Environmental IoT Sensing with Reinforcement Learning, *IEEE SECON 2023*.

H. Jiang, X. Zhang and **C. Joe-Wong**, DOLL: Distributed OnLine Learning using Preemptible Cloud Instances, *IEEE/IFIP WiOpt 2023*. Preliminary version appeared in *MAMA 2022*.

R. Bostandoost, B. Sun, **C. Joe-Wong** and M. Hajiesmaili, Near-optimal Online Algorithms for Joint Pricing and Scheduling in EV Charging Networks, Best Paper Candidate at *ACM E-Energy 2023*.

W. Wu, X. Zhang, J. Duan, **C. Joe-Wong**, Z. Zhou and X. Chen, AdaCoOpt: Leverage the Interplay of Batch Size and Aggregation Frequency for Federated Learning, Best Paper Candidate at *IEEE/ACM IWQoS 2023*.

Y. Hu, C. Zhang, E. Andert, H. Singh, A. Shrivastava, J. Laudon, Y. Zhou, B. Iannucci and **C. Joe-Wong**, GiPH: Generalizable Placement Learning for Adaptive Heterogeneous Computing, *MLSys 2023*.

X. Liu*, J. Zuo*, H. Xie, **C. Joe-Wong** and J. C. S. Lui, Variance-Adaptive Algorithm for Probabilistic Maximum Coverage Bandits with General Feedback, *IEEE INFOCOM 2023*.

*These authors contributed equally to the paper.

Y. Yao, M. Mahdi Kamani, E. Cheng, L. Chen, **C. Joe-Wong** and T. Liu, FedRule: Federated Rule Recommendation System with Graph Neural Networks, *ACM/IEEE IoTDI 2023*.

T. Kim, S. Singh, N. Madaan and **C. Joe-Wong**, Characterizing Internal Evasion Attacks in Federated Learning, *AISTATS 2023*.

I.-C. Lin, O. Yağan and **C. Joe-Wong**, Evaluating the Optimality of Dynamic Coupling Strategies in Interdependent Network Systems, *IEEE ICC 2023*.

M. T. Siew, S. Sharma and C. Joe-Wong, ACRE: Actor Critic Reinforcement Learning for Failure-Aware Edge Computing Migrations, *CISS 2023*.

X. Liu, J. Zuo, S. Wang, **C. Joe-Wong**, J. C. S. Lui and W. Chen, Batch-Size Independent Regret Bounds for Combinatorial Semi-Bandits with Probabilistically Triggered Arms or Independent Arms, *NeurIPS 2022*.

J. Zuo, S. Hu, T. Yu, S. Li, H. Zhao and **C. Joe-Wong**, Hierarchical Conversational Preference Elicitation with Bandit Feedback, *ACM CIKM 2022*.

S. Gupta*, J. Zuo*, **C. Joe-Wong**, G. Joshi and O. Yağan, Correlated Combinatorial Bandits for Online Resource Allocation, *ACM MobiHoc 2022*.

*These authors contributed equally to the paper.

- J. Zuo, X. Liu, **C. Joe-Wong**, J. C. S. Lui and W. Chen, Online Competitive Influence Maximization, *AISTATS 2022*.
- S.S. Azam, T. Kim, S. Hosseinalipour, **C. Joe-Wong**, S. Bagchi and C. Brinton, Can we Generalize and Distribute Private Representation Learning?, *AISTATS 2022*.
- T. Kim, S. Sathyanarayana, S. Chen, Y. Im, X. Zhang, S. Ha and **C. Joe-Wong**, MoDEMS: Optimizing Edge Computing for User Mobility, *IEEE INFOCOM 2022*.
- Y. Ruan and **C. Joe-Wong**, FedSoft: Soft Clustered Federated Learning with Proximal Local Updating, *AAAI 2022*.
- Y. Fan, Y. Yao and **C. Joe-Wong**, GCN-SE: Attention as Explainability for Node Classification in Dynamic Graphs, *IEEE ICDM 2021*.
- Y. Ruan, X. Zhang and **C. Joe-Wong**, How Valuable Is Your Data? Optimizing Device Recruitment in Federated Learning, *WiOpt 2021*.
- P. Kortoci, A. Mehrabi, **C. Joe-Wong** and M. Di Francesco, Incentivizing Opportunistic Data Collection for Time-Sensitive IoT Applications, *IEEE SECON 2021*.
- J. Zuo and **C. Joe-Wong**, Combinatorial Multi-armed Bandits for Resource Allocation, *CISS 2021* (invited paper).
- Y. Ruan, X. Zhang, S.-C. Liang and **C. Joe-Wong**, Towards Flexible Device Participation in Federated Learning, *AISTATS 2021*.
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- P. Rahimzadeh, J. Lee, Y. Im, S.-C. Mau, E. C. Lee, B. O. Smith, F. Al-Duoli, **C. Joe-Wong** and S. Ha, SPARCLE: Stream Processing Applications over Dispersed Computing Networks, *IEEE ICDCS 2020*.
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- K. T. Kim, **C. Joe-Wong** and M. Chiang, Coded Edge Computing, *IEEE INFOCOM 2020*.
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- Y. Tu, Y. Ruan, S. Wagle, C. G. Brinton and **C. Joe-Wong**, Network-Aware Optimization of Distributed Learning for Fog Computing, *IEEE INFOCOM 2020*.
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- J. Zuo, X. Zhang and **C. Joe-Wong**, Observe Before Play: Multi-Armed Bandits with Pre-Observations, *AAAI 2020*.
- X. Zhang, S. Chen, Y. Im, M. Gorlatova, S. Ha and **C. Joe-Wong**, Towards Automated Network Management: Learning the Optimal Protocol Selection for Network Flows, *IEEE ICNP 2019* (short paper).
- E. Aryafar, A. Keshavarz-Haddad and **C. Joe-Wong**, Proportional Fair RAT Aggregation in HetNets, *ITC 31 (International Teletraffic Congress 2019)*.

P. Rahimzadeh, Y. Im, G. Jung, **C. Joe-Wong** and S. Ha, ECHO: Efficiently Overbooking Applications to Create a Highly Available Cloud, *IEEE ICDCS 2019*.

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S. Xu, X. Chen, **C. Joe-Wong**, P. Zhang and H. Y. Noh, Incentivizing Large-Scale Vehicular Crowdsensing System for Smart City Applications, *SPIE Conference on Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems, 2019*.

Y. Im, P. Rahimzadeh, B. Shouse, S. Park, **C. Joe-Wong**, K. Lee and S. Ha, I Sent It: Where Does Slow Data Go to Wait?, *ACM EuroSys 2019*.

Y. Jiang, M. Shahrad, D. Wentzlaff, D. H. K. Tsang and **C. Joe-Wong**, Burstable Instances for Clouds: Performance Modeling, Equilibrium Analysis, and Revenue Maximization, *IEEE INFOCOM 2019*.

P. Kortoci, L. Zheng, **C. Joe-Wong**, M. Di Francesco and M. Chiang, Fog-based Data Offloading in Urban IoT Scenarios, *IEEE INFOCOM 2019*.

W. Chen, **C. Joe-Wong**, C. G. Brinton, L. Zheng and D. Cao, Principles of Assessing Adaptive Online Courses, *Educational Data Mining 2018*.

M. Harishankar*, N. Srinivasan*, **C. Joe-Wong** and P. Tague, To Accept or Not to Accept: The Question of Supplemental Discount Offers in Mobile Data Plans, *IEEE INFOCOM 2018*.

*These authors contributed equally to the paper.

M. Khodak, L. Zheng, A. S. Lan, **C. Joe-Wong** and M. Chiang, Learning Cloud Dynamics to Optimize Spot Instance Bidding Strategies, *IEEE INFOCOM 2018*.

T. Oda and **C. Joe-Wong**, MOVI: A Model-Free Approach to Dynamic Fleet Management, *IEEE INFOCOM 2018*.

T.-Y. Yang, C. G. Brinton and **C. Joe-Wong**, Predicting Learner Interactions in Social Learning Networks, *IEEE INFOCOM 2018*.

L. Zheng, **C. Joe-Wong**, M. Andrews and M. Chiang, Optimizing Data Plans: Usage Dynamics in Mobile Data Networks, *IEEE INFOCOM 2018*.

L. Zheng, J. Chen, **C. Joe-Wong**, C. W. Tan and M. Chiang, An Economic Analysis of Wireless Network Infrastructure Sharing, *WiOpt 2017*.

E. Aryafar, A. Keshavarz-Haddad, **C. Joe-Wong** and M. Chiang, Max-Min Fair Resource Allocation in HetNets: Distributed Algorithms and Hybrid Architecture, *IEEE ICDCS 2017*.

Y. Im, J. Han, J. H. Lee, Y. Kwon, **C. Joe-Wong**, T. Kwon and S. Ha, FLARE: Coordinated Rate Adaptation for HTTP Adaptive Streaming in Cellular Networks, *IEEE ICDCS 2017*.

Z. Huang, M. Weinberg, L. Zheng, **C. Joe-Wong** and M. Chiang, Discovering Valuations and Enforcing Truthfulness in a Deadline-Aware Scheduler, *IEEE INFOCOM 2017*.

P. Rahimzadeh, **C. Joe-Wong**, K. Shin, Y. Im, J. Lee and S. Ha, SVC-TChain: Incentivizing Good Behavior in Layered P2P Video Streaming, *IEEE INFOCOM 2017*.

L. Zheng, **C. Joe-Wong**, J. Chen, C. G. Brinton, C. W. Tan and M. Chiang, Economic Viability of a Virtual ISP, *IEEE INFOCOM 2017*.

C. Joe-Wong, Y. Im, K. Shin and S. Ha, A Performance Analysis of Incentive Mechanisms for Cooperative Computing, *IEEE ICDCS 2016*.

L. Zheng, **C. Joe-Wong**, C. Brinton, C. W. Tan, S. Ha and M. Chiang, On the Viability of a Cloud Virtual Service Provider, *ACM SIGMETRICS 2016*.

L. Zheng, **C. Joe-Wong**, C. W. Tan, M. Chiang and X. Wang, How to Bid the Cloud, *ACM SIGCOMM 2015*.

K. Shin, **C. Joe-Wong**, S. Ha, Y. Yi, I. Rhee and D. Reeves, T-Chain: A General Incentive Scheme for Cooperative Computing, *IEEE ICDCS 2015*.

F. M. F. Wong, **C. Joe-Wong**, S. Ha, Z. Liu and M. Chiang, Improving User QoE for Residential Broadband: Adaptive Traffic Management at the Network Edge, *IEEE/ACM IWQoS 2015*.

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L. Zheng, **C. Joe-Wong**, C. W. Tan, S. Ha and M. Chiang, Secondary Markets for Mobile Data: Feasibility and Benefits of Traded Data Plans, *IEEE INFOCOM 2015*.

J. Chung, **C. Joe-Wong**, S. Ha, J. W.-K. Hong and M. Chiang, CYRUS: Towards Client-Defined Cloud Storage, *ACM EuroSys 2015*.

C. Joe-Wong, S. Sen, S. Ha and M. Chiang, Do Mobile Data Plans Affect Usage? Results from a Pricing Trial with ISP Customers, *PAM 2015*.

S. Sen, **C. Joe-Wong**, S. Ha, J. Bawa and M. Chiang, When the Price Is Right: Enabling Time-Dependent Pricing of Broadband Data, *ACM SIGCHI 2013*.

C. Joe-Wong, S. Sen and S. Ha, Offering Supplementary Wireless Technologies: Adoption Behavior and Offloading Benefits, *IEEE INFOCOM 2013*.

Y. Im, **C. Joe-Wong**, S. Ha, S. Sen, T. Kwon and M. Chiang, AMUSE: Empowering Users for Cost-Aware Offloading with Throughput-Delay Tradeoffs, *IEEE INFOCOM 2013* (mini-conference).

S. Ha, S. Sen, **C. Joe-Wong**, Y. Im and M. Chiang, TUBE: Time-Dependent Pricing for Mobile Data, *ACM SIGCOMM 2012*.

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S. Ha, **C. Joe-Wong**, S. Sen and M. Chiang, Pricing by Timing: Innovating Broadband Data Plans, *SPIE-OPTO Broadband 2012* (invited paper).

C. Joe-Wong, S. Ha and M. Chiang, Time-Dependent Broadband Pricing: Feasibility and Benefits, *IEEE ICDCS 2011*.

Workshop Papers, Demos, and Posters

B. Guda, L. Francis, G. Z. Ashungafac, **C. Joe-Wong** and M. Busogi, TINY: Rethinking Selection Bias in LLMs: Quantification and Mitigation using Efficient Majority Voting, to appear as a tiny paper in *QUESTION 2025*, co-located with ICLR 2025.

S. Ambekar, Y. Yao, Y. Li and **C. Joe-Wong**, FedGAT: A Privacy-Preserving Federated Approximation Algorithm for Graph Attention Networks, *FLUID 2025*, co-located with AAAI 2025.

- A. Kumar, H. Yang, W. S. Lee, J. W. Goh, **C. Joe-Wong** and M. Siew, Towards Adversarially Robust Human-in-the-Loop Learning for HVAC Systems, *AAAI 2025 Workshop on Artificial Intelligence for Wireless Communications and Networking (AI4WCN)*.
- H. Yang, J. Chen, M. Siew, T. Lorido Botran and **C. Joe-Wong**, LLM-Powered Decentralized Generative Agents with Adaptive Hierarchical Knowledge Graph for Cooperative Planning, *AAAI 2025 Workshop on Multi-Agent AI in the Real World*.
- B. Guda, G. Ashungafac, L. Francis and **C. Joe-Wong**, QMOS: Enhancing LLMs for Telecommunication with Question Masked loss and Option Shuffling, *Workshop on the Impact of Multi-modal Large Language Models on 6G and Beyond*, co-located with IEEE GLOBECOM 2024.
- P. Zantou, B. Guda, G. Inabeza, B. Retta, **C. Joe-Wong** and A. Gueye, HumekaFL: Automated Detection of Neonatal Asphyxia Using Federated Learning, poster at *ACM COMPASS 2024*.
- H. Zhang, Z. Li, Z. Gong, M. Siew, **C. Joe-Wong** and R. El-Azouzi, Poster: Optimal Variance-Reduced Client Sampling for Multiple Models Federated Learning, Best Poster Award at *IEEE ICDCS 2024*.
- T. Fernandez, Y.C. Chang, J. Codling, Y. Dong, J. Zhang, **C. Joe-Wong**, H. Y. Noh and P. Zhang, Poster: Drive-by City Wide Trash Sensing for Neighborhood Sanitation Need, poster at *ACM MobiSys 2024*.
- Y. C. Chang, J. Codling, Y. Dong, J. Zhang, J. Shulkin, H. Latapie, **C. Joe-Wong**, H. Y. Noh and P. Zhang, Listen and Then Sense: Vibration-based Sports Crowd Monitoring by Pre-training with Public Audio Datasets, poster at *ACM/IEEE IPSN 2024*.
- Y. Hu, J. Zuo, A. Zhao, B. Iannucci and **C. Joe-Wong**, CoRAST: Towards Foundation Model-Powered Correlated Data Analysis in Resource-Constrained CPS and IoT, *FMSys 2024*, held in conjunction with CPS-IoT Week 2024.
- H. Yang, M. Siew and **C. Joe-Wong**, An LLM-Based Digital Twin for Optimizing Human-in-the Loop Systems, *FMSys 2024*, held in conjunction with CPS-IoT Week 2024.
- T. Kim, J. Li, S. Singh, N. Madaan and **C. Joe-Wong**, Adversarial Robustness Unhardening via Backdoor Attacks in Federated Learning, *BUGS 2023*, held in conjunction with NeurIPS 2023.
- W. Jin, Y. Yao, S. Han, **C. Joe-Wong**, S. Ravi, S. Avestimehr and C. He, FedML-HE: An Efficient Homomorphic-Encryption-Based Privacy-Preserving Federated Learning System, *International Workshop on Federated Learning in the Age of Foundation Models*, held in conjunction with NeurIPS 2023.
- S. Lin, X. Zhang, Y. Li, **C. Joe-Wong**, J. Duan and X. Chen, An Online Control Approach of Collaborative Federated Learning with Constrained Resources, poster at *ACM APNET 2023*.
- W. Wu, X. Zhang, J. Duan, **C. Joe-Wong**, Z. Zhou and X. Chen, Federated Learning at the Edge: An Interplay of Mini-batch Size and Aggregation Frequency, *FOGML 2023*, held in conjunction with IEEE INFOCOM 2023.
- M. T. Siew, S. Arunasalam, Y. Ruan, Z. Zhu, L. Su, S. Ioannidis, E. Yeh and **C. Joe-Wong**, Poster Abstract: Fair Training of Multiple Federated Learning Models on Resource Constrained Network Devices, Best Poster Award at *ACM/IEEE IPSN 2023*.
- Y. Yao, M. M. Kamani, Z. Cheng, L. Chen, **C. Joe-Wong** and T. Liu, FedRule: Federated Rule Recommendation System with Graph Neural Networks, *FL-NeurIPS 2022*, held in conjunction with NeurIPS 2022.
- Y. Yao and **C. Joe-Wong**, FedGCN: Convergence and Communication Tradeoffs in Federated Training of Graph Convolutional Networks, *FedGraph 2022*, held in conjunction with ACM CIKM 2022.

T. Kim, S. Singh, N. Madaan and **C. Joe-Wong**, Grey-Box Defense for Personalized Federated Learning, *CrossFL 2022*, held in conjunction with MLSys 2022.

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H. Jiang, X. Zhang and **C. Joe-Wong**, DOLL: Distributed OnLine Learning using Preemptible Cloud Instances, *MAMA 2022*, held in conjunction with ACM SIGMETRICS/IFIP Performance 2022.

S. Gupta*, J. Zuo*, **C. Joe-Wong**, G. Joshi and O. Yağan, Correlated Combinatorial Bandits for Online Resource Allocation, Best Poster Award at *ACM SIGMETRICS 2022*.

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S. Lin, Y. Yao, H. Y. Noh, P. Zhang and **C. Joe-Wong**, A Neural-Based Bandit Approach to Mobile Crowdsourcing, *ACM HotMobile 2022*.

S. S. Azam, T. Kim, S. Hosseinalipour, **C. Joe-Wong**, S. Bagchi and C. Brinton, A Generalized and Distributable Generative Model for Private Representation Learning, *NeurIPS 2021 Workshop DGMS and Downstream Applications*.

Y. Yao, J. Zuo, H. Noh, P. Zhang and **C. Joe-Wong**, Optimizing Outdoor Data Collection over Dynamic Heterogeneous Sensors, poster at the *Mechanistic Machine Learning and Digital Twins for Computational Science, Engineering & Technology 2021*.

T. Kim, S. Chen, Y. Im, X. Zhang, S. Ha and **C. Joe-Wong**, MoDEMS: Optimizing Edge Computing Migrations For User Mobility, poster at *IEEE/ACM IWQoS 2021*.

M. Harishankar, J. Zuo, S. V. Iyer, P. Tague and **C. Joe-Wong**, Datanet: Enabling Seamless, Metered and Trusted Internet Connectivity without Subscriptions, *IEEE ICC 2021 Workshop Towards Standardized Secured IoT B5G Networking - Artificial Intelligence and Blockchain* (invited paper).

P. A. Kienscherf, J. Collins, **C. Joe-Wong**, W. Ketter and S. Sen, Time-Dependent Electricity Pricing Using Variable Announcement Horizons, *DACH+ Conference on Energy Informatics 2020*.

X. Li, S. Gomana, L. Ballard, J. Li, E. Aryafar and **C. Joe-Wong**, A Community Platform for Research on Pricing and Distributed Machine Learning, demo at *IEEE ICDCS 2020*.

Z. Wu, X. Zhang, S. Xu, X. Chen, P. Zhang, H. Y. Noh and **C. Joe-Wong**, A Generative Simulation Platform for Multi-agent Systems with Incentives, *ACM UbiComp Workshop on Combining Physical and Data-Driven Knowledge in Ubiquitous Computing, 2020*.

Q. Qiu, M. Bozsik, G. Ren, **C. Joe-Wong**, M. Nazzal and J. Burns, Geographic Disparities in Access to Lymphedema Treatment, accepted to *AcademyHealth 2020 Annual Research Meeting* (cancelled due to COVID-19).

J. Stojkovic, Z. Liu, G. Lan, **C. Joe-Wong** and M. Gorlatova, Demo: Edge-assisted Collaborative Image Recognition for Augmented Reality, *ACM SenSys 2019*.

S. Yerabolu, S. Gomana, E. Aryafar and **C. Joe-Wong**, An Edge Computing Marketplace for Distributed Machine Learning, demo at *ACM SIGCOMM 2019*.

S. D. Sathyanarayana, J. Lee, J. Lee, Y. Im, P. Rahimzadeh, X. Zhang, M. Hollingsworth, **C. Joe-Wong**, D. Grunwald and S. Ha, CASTLE over the Air: Distributed Scheduling for Cellular Data Transmissions, demo at *ACM MobiSys 2019*.

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- S. Xu, X. Chen, X. Pi, **C. Joe-Wong**, P. Zhang and H. Y. Noh, Vehicle Dispatching for Sensing Coverage Optimization in Mobile Crowdsensing Systems, poster at *ACM IPSN 2019*.
- X. Chen, S. Xu, H. Fu, **C. Joe-Wong**, L. Zhang, H. Noh and P. Zhang, ASC: Actuation System for City-wide Crowdsensing with Ride-sharing Vehicular Platform, *4th Workshop on Science of Smart City Operations and Platforms Engineering (SCOPE) 2019*, part of CPS-IoT Week 2019.
- M. Harishankar, P. Tague and **C. Joe-Wong**, Network Slicing as an Ad-Hoc Service: Opportunities and Challenges in Enabling User-Driven Resource Management in 5G, *Workshop on Trustworthy & Real-time Edge Computing for Cyber-Physical Systems (TREC4CPS)*, co-located with IEEE RTSS 2018.
- Y. Ruan and **C. Joe-Wong**, On the Economic Value of Vehicular Caching, *ACM SIGMETRICS Work-in-Progress 2018*.
- J. Zuo, X. Zhang and **C. Joe-Wong**, Observe before Play: Multi-armed Bandit with Pre-Observations, *ACM SIGMETRICS Work-in-Progress 2018*.
- A. Jauhri, **C. Joe-Wong** and J. P. Shen, On the Real-Time Vehicle Placement Problem, *NIPS Workshop on Machine Learning for Intelligent Transportation Systems 2017*.
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- S. Ha, S. Sen, **C. Joe-Wong**, R. Rill and M. Chiang, Demo: Enabling Mobile Time-Dependent Pricing, *ACM MobiSys 2012*.
- S. Ha, S. Sen, **C. Joe-Wong**, J. Mifkovich, R. Rill, Y. Im, D. Butnariu, J. Bawa and M. Chiang, Demo: Pricing by Timing for Mobile Data, *IEEE INFOCOM 2012*.
- C. Joe-Wong**, S. Ha, S. Sen and M. Chiang, TUBE: Pricing by Timing, poster session at New York Computer Science and Economics Day, September 2011.
- S. Ha, S. Sen, **C. Joe-Wong** and M. Chiang, TUBE Trials: Pricing by Timing, NECA (National Exchange Carrier Association) EXPO 2011.
- C. Joe-Wong**, S. Ha and M. Chiang, Time-Dependent Broadband Pricing, *ITA (Information Theory and Applications) Workshop 2011*.

Patents

M. Chiang, **C. Joe-Wong**, S. Ha and S. Sen, System and Methods for Time Deferred Transmission of Mobile Data, U.S. Patent #10536584, January 2020.

M. Chiang, S. Ha, S. Sen and **C. Joe-Wong**, System and Method for Variable Pricing of Data Usage, U.S. Patent #9865009, January 2018.

M. Chiang, S. Ha, **C. Joe-Wong**, J. Shantigram and W. Sweldens, System and Method for Scheduling Mobile Data during a Spectrum Valley, U.S. Patent #9820291, November 2017.

J. Shantigram, M. Shi, **C. Joe-Wong** and S. Ha, System and Method for Coordinating Client-side Inference of Mobile Network Loading and Capacity, U.S. Patent #9794155, October 2017.

M. Chiang, S. Ha, **C. Joe-Wong**, H. S. Saluja, J. Shantigram and W. Sweldens, Client-Side Inference of Wireless Network States, U.S. Patent #9407508, August 2016.

Academic Service

Editorial Board: ACM Journal on Autonomous Transportation Systems (2023–present), IEEE/ACM Transactions on Networking (2022–2024); IEEE Transactions on Network Science and Engineering (2021–2025), IEEE Transactions on Wireless Communications (2021–2024); Computer Networks (2019–2024); OJ-COMS (Open Journal of the IEEE Communication Society, Associate Editor from 2019–2024 and Area Editor for Network Science and Economics from 2025–present); IEEE Networking Letters (2018–2022)

Associate Editor: ACM Transactions on Performance Evaluation of Computing Systems, Special Issue on Performance Evaluation of Federated Learning Systems (2024), ACM Journal on Autonomous Transportation Systems, Special Issue on Full-Stack Codesign for Robust and Secure AI-enabled Autonomous Transportation Systems (2023), IEEE Journal on Selected Areas in Communications, Special Issue on Smart Data Pricing for Next-Generation Networks (2020) and IEEE Open Journal of the Communications Society, Special Issue on Optimization and Economics of Fog/Edge Networks (2021)

Co-Chair: Multi-Agent reinforcement Learning for Transportation Autonomy (MALTA) Workshop at AAAI 2025; ACM CoNEXT Student Workshop 2024; First NativeNI Workshop (at ACM CoNEXT 2022); First CrossFL Workshop (at MLSys 2022); First FogML Workshop (at IEEE INFOCOM 2021); First BlockNet Workshop (at ACM MobiHoc 2020); Smart Data Pricing Forum, University of Minnesota (2018); Sixth Workshop on Smart Data Pricing (at IEEE INFOCOM 2017); Wireless of the Students, by the Students, and for the Students (S³) Workshop (at ACM MobiCom 2014)

TPC Member: Supercomputing 2024–2025, ACM HotMobile 2023, FL-NeurIPS Workshop 2022, ACM Student Research Competition 2022, IEEE ICNP 2022, ACM IPSN 2022–2024, MLSys 2022–2024, APPLIED 2022–2023 (co-located with ACM PODC), IFIP Performance 2021, IEEE ICDCS 2021 and 2024, AIChallengeIoT 2020 (co-located with ACM SenSys), ACM SenSys 2020 and 2025, ICML 2020–2021, ACM SIGMETRICS 2018–2020 and 2022–2025, IEEE INFOCOM 2018–2025 (Distinguished TPC Member 2019–2021), ACM MobiHoc 2017–2024, IEEE WiOpt 2019, HDR-Nets 2019 and 2020 (co-located with IEEE ICNP), RAWNET 2019 (co-located with WiOpt), NetEcon 2017–2021, NetGCoop 2018, ITC29, Fog World Congress 2017, IEEE INFOCOM Workshops on Smart Data Pricing 2013–16

TPC Co-Chair: IEEE/IFIP International Symposium on Modeling and Optimization in Mobile, Ad hoc, and Wireless Networks (WiOpt) 2023; IEEE Sarnoff Symposium 2019; First Workshop on the Economics of Fog, Edge and Cloud Computing (ECOFEC, co-located with IEEE INFOCOM 2019)

Track Co-Chair: IEEE MASS 2024 (AI/ML-based Smart Design Track)

Poster Co-Chair: ACM MobiCom 2021 (also Student Research Competition Co-chair), ACM MobiHoc 2023 (also Demo Chair)

Poster and Demo Competition Judge: ACM Symposium on Edge Computing (SEC) 2020

Workshop Co-Chair: ACM MobiHoc 2020, IEEE SECON 2022, ACM CoNEXT 2023

Publicity Chair: ACM SIGMETRICS 2019

Tutorial Chair: IEEE WiOpt 2018 and ACM SIGMETRICS 2023

Student Activities Chair: ACM SIGMETRICS, ACM MobiCom 2018

Web Chair: Fog World Congress 2017

Journal reviewer: IEEE/ACM Transactions on Networking, IEEE Journal on Selected Areas in Communications, IEEE Transactions on Information Theory, ACM Transactions on Modeling and Performance Evaluation of Computing Systems, ACM Transactions on Internet Technology, IEEE Transactions on Mobile Computing, IEEE Transactions on Smart Grid, IEEE Transactions on Automatic Control, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Communications, IEEE Network, IEEE Communications Letters, IEEE Transactions on Wireless Communications.

Grant reviewer: A* STAR and Japan Science and Technology Agency (2024), US Army Research Office (2019, 2020), Maryland Industrial Partnerships Program (2019), NSF CISE and TIP Directorates (2018–2021, 2023, 2024), Israel Science Foundation (2017)

Outreach Activities

Mentor and Panelist at the NSF NeTS Early Career Workshop 2025

Program Committee Member at the ACM SIGMETRICS Student Research Competition 2025

Opening Speaker at the Pittsburgh Women in Mathematics and Computing Symposium 2023

Speaker at the Women in Engineering Forum, IEEE World Forum on the Internet-of-Things 2022

N2Women Mentorship Chair, ACM MobiSys 2022 and ACM MobiCom 2022 and 2025

Chair, ACM SIGMETRICS Doctoral Dissertation Award Committee 2022

Steering Committee Member, Wireless of the Students, by the Students, and for the Students (S3) Workshop (co-located with ACM MobiCom, 2009–2019 and 2021) 2021–present

Panelist at the N2Women Meetings at ACM MobiHoc 2023, IEEE INFOCOM 2020, ACM MobiHoc 2020, ACM MobiCom 2021

Mentor at the ACM SIGCOMM N2Women Workshop 2020

Chair of the ACM SIGMETRICS Committee on Student Engagement 2019–2021

Co-Chair of the NSF NeTS Early Career Workshop 2019

Speaker at the UNCF Silicon Valley CS Academy Program 2019

Panelist for the NCWIT Aspirations in Computing Award Ceremony 2018

N2Women Mentor at IEEE INFOCOM 2018

Smart Data Pricing	2017
Research@CMU (Professional development program for area educators)	
The Economics of Energy Choices	2017–2018
Summer Engineering Experience (SEE) for Girls, CMU College of Engineering	
Judge for CMU ECE's Grace Hopper Conference Scholarships	2017–2018
Junior Faculty Panel	2016
Rising Stars in EECS Workshop, hosted by CMU	
Smart Data Pricing: From Mathematical Theory to a Startup Company	2016
Program for Women and Mathematics, Institute for Advanced Study and Princeton University	

Invited Talks and Panels

Using Foundation Models to Coordinate Distributed Learning	2024
Keynote at the International Workshop on Mobile Computing with Efficient and Interactive Foundation Models, held in conjunction with ACM MobiCom 2024	
Enabling Distributed Applications in Uncertain and Dynamic Network Environments	2024
University of Massachusetts–Amherst, STR, ITU AI for Social Good, NSF AI-EDGE Institute (Distinguished Speaker Seminar Series)	
Distributed Learning on Correlated Data with Communication Constraints	2024
University of Michigan, Northeastern University, University of Toronto	
Adversarial Robustness Unhardening: A New Type of Federated Learning Attack	2024
Microsoft AI Community Outside Speaker Series	
Making Homomorphic Encryption Feasible for Federated Learning	2023
Adobe Research	
FedSoft: Soft Clustered Federated Learning with Proximal Local Updating	2023
Allerton Conference on Communication, Control, and Computing	
Learning to Optimize Wireless Resource Allocation for Heterogeneous User Applications	
2023 GOGE Workshop at Seoul National University	
Combinatorial Bandits for Intent-Driven Network Resource Allocation	2023
Office of Naval Research	
Learning with Side Information: Elastic Multi-resource Control for the Open RAN	2023
AT&T Research	
AI/ML Techniques for Next-generation Networking	2022
ACM MobiHoc 2022 Panel	
Optimizing Device Contributions to Distributed Learning	2022
CISS, Google, IEEE LANMAN, IEEE World Forum on the Internet of Things, Seoul National University	

- Learning with Side Information: Online Resource Allocation for O-RAN 5G Networks** 2021
INFORMS Annual Meeting
- Optimizing Contributions to Distributed, Networked Learning** 2021
CCDWN Workshop at WiOpt 2021
- An Introduction to AI for Medicine: Prerequisites and Applications** 2021
Inaugural Artificial Intelligence and Innovation Conference, University of Toledo School of Medicine
- Machine Learning in Autonomous Networked Systems** 2021
KBR Wyle
- Incentivizing Taxi Movement for Balanced City-Wide Services** 2020
CMU Smart Mobility Connection Seminar
- Optimizing the Cost of Distributed Learning** 2020, 2021
Pennsylvania State University, University of Illinois Urbana-Champaign, Stanford University, Johns Hopkins University, Ericsson
- Multi-Player Bandits with Pre-Observations** 2019
Adobe Research
- Learning How to Request Network Services** 2019
HDR-NETS Workshop, co-located with IEEE ICNP 2019
- Burstable Instances: Models, Equilibria, and Revenue** 2019
Invited participant, 15th Annual Cloud Control Workshop, Sandhamn, Sweden
- On the Optimization of Distributed Learning** 2019
LGS Innovations, AT&T Research, Princeton University EDGE10 Workshop
- Real-Time Resource Allocation: Meeting Interactive Application Needs in Clouds and Networks** 2019
Aalto University
- Real-Time Network Slicing: Opportunities and Challenges** 2019
ACM MobiHoc TPC Meeting Workshop, University of Michigan Ann Arbor
- Towards Automated Network Management: Learning Optimal Protocols** 2018
Speaker and panelist, IEEE Sarnoff Symposium
- Networking the Intelligent Edge** 2018
Panelist, IEEE LANMAN
- Secure Routing for the Internet** 2018
Invited participant, Schloss Dagstuhl seminar
- Learning to Compete in Networked Systems** 2018
University of California, Riverside
- Smart Data Pricing: Creating Incentives for Better Quality-of-Experience** 2017
Samsung Research America

- Network Optimization in Urban Environments: Smart Grids and Taxis** 2017
Carnegie Mellon University (Civil and Environmental Engineering)
- Letting Go of Network Neutrality: Some Implications for Internet Stakeholders** 2017
University of California, Berkeley
- Applied and Cognitive Symposium: Human Usage of the Worldwide Web** 2017
Eastern Psychological Association Annual Meeting
- The Demand Side of Network Management: Using Incentives to Alleviate Network Congestion** 2017
Intel Corporation, BAE Systems
- Using Pricing to Manage the Cloud** 2017
Johns Hopkins University, California Institute of Technology, Yelp Inc., Microsoft Research, IBM T.J. Watson Research Center
- Smart Data Pricing: Incentives in Network Resource Allocation** 2016
ECE Department Seminar, Carnegie Mellon University
- Understanding Fairness in Multi-Resource Allocation** 2016
University of Pennsylvania (Wharton); Cornell University; Stanford Graduate School of Business
- Smart Data Pricing** 2015, 2016
Purdue University; University of Waterloo; Johns Hopkins University; Georgia Institute of Technology; University of California, San Diego; Carnegie Mellon University; Massachusetts Institute of Technology; Duke University; University of Pennsylvania; Rice University; Arizona State University; University of Illinois, Urbana-Champaign; University of Southern California
- Optimal Control Landscapes for Molecules Described by Classical Mechanics** 2015
Multidisciplinary Research Seminar, Princeton University
- An Economic Look at Sponsoring and Trading Mobile Data** 2015
Alcatel-Lucent Bell Labs
- Valuation for High-Tech Startups Panel** 2015
Princeton University Keller Center
- Sponsored Data and Net Neutrality** 2015
Chinese University of Hong Kong Workshop on Network Optimization and Economics
- Whom to Charge: Open Toll-free and Zero-rating** 2015
SDP Industry Forum Panel, Princeton, NJ, USA
- Multi-Resource Allocation: Fairness, Efficiency, and Applications** 2015
Korea Advanced Institute of Science and Technology; Cornell University; University of California, Los Angeles; University of Southern California; California Institute of Technology
- Industry-Academia Panel at the Third International Workshop on Smart Data Pricing** 2014
- Smart Data Pricing** 2012
Time Warner Cable/NYC Media Labs Research Summit

- Pricing Complementary Wireless Technologies** 2012
PACM Graduate Student Seminar, Princeton University
- Multi-Resource Allocation: Fairness-Efficiency Tradeoffs in a Unifying Framework** 2012
NEC Labs; Applied Communication Sciences; Princeton University
- TUBE: Pricing by Timing** 2011
Princeton University Keller Center Innovation Forum

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<http://www.andrew.cmu.edu/user/cjoewong/CV.pdf>