Navid NaderiAlizadeh

Department of Biostatistics & Bioinformatics
Duke University, Durham, NC 27705

✉ navid.naderi@duke.edu
https://sites.duke.edu/navid/

Research Interests

- Machine learning algorithms for biological and clinical discovery and decision making
- Optimal transport techniques for efficient embedding and alignment of high-dimensional data
- Constrained optimization in continual, active, representation, and reinforcement learning
- Multi-modal unsupervised and self-supervised representation learning

Education

2014 – 2016 **Ph.D. in Electrical Engineering**, *University of Southern California*, Los Angeles, CA
Advisor: Salman Avestimehr

2011 – 2014 **M.Sc. in Electrical and Computer Engineering**, *Cornell University*, Ithaca, NY
Advisor: Salman Avestimehr

2007 – 2011 **B.Sc. in Electrical Engineering**, *Sharif University of Technology*, Tehran, Iran
Advisor: S. Jamaloddin Golestani

Professional Experience

Aug. 2023 – Present **Assistant Research Professor of Biostatistics & Bioinformatics**, *Duke University*, Durham, NC
Investigated machine learning algorithms for analyzing biological and clinical data.

Jul. 2021 – Jul. 2023 **Postdoctoral Researcher**, *University of Pennsylvania*, Philadelphia, PA
Worked with Alejandro Ribeiro.
Developed novel continual learning, active learning, federated learning, and representation learning methods using Lagrangian duality, designed unsupervised primal-dual learning algorithms for wireless resource allocation using graph neural networks, and studied the impact of minimizing age of information on decentralized multi-agent control tasks

Feb. 2020 – Jul. 2021 **Machine Learning Research Scientist**, *HRL Laboratories*, Malibu, CA
Worked with Soheil Kolouri, Heiko Hoffmann, and Deepak Khosla.
Investigated novel graph learning and set learning methods using linear optimal transport, graph-based multi-agent deep reinforcement learning algorithms with centralized training and decentralized execution, and self-supervised learning techniques for learning with limited labels

Jan. 2017 – Feb. 2020 **Research Scientist**, *Intel Labs*, Santa Clara, CA
Worked with Hosein Nikopour and Shilpa Talwar.
Designed novel resource allocation algorithms based on multi-agent deep reinforcement learning and information theory for 5G wireless networks and beyond

Jan. 2014 – Dec. 2016 **Graduate Research Assistant**, *University of Southern California*, Los Angeles, CA
Worked with Salman Avestimehr.
Studied the fundamental limits of interference management in cache-aided wireless networks, and developed a new algorithm, called ITLinQ, for spectrum sharing in wireless device-to-device (D2D) systems

Jun. 2015 – Aug. 2015 **Wireless Networks Research Intern**, *Bell Labs, Alcatel-Lucent*, Crawford Hill, NJ
Worked with Mohammad Ali Maddah-Ali.
Designed an algorithm for interference management in wireless networks using caches at both transmitter and receiver sides, and studied the impact of multicast groups on the per-user rates of single-server caching networks

Jan. 2012 – Dec. 2013 **Graduate Research Assistant**, *Cornell University*, Ithaca, NY
Worked with Salman Avestimehr.
Formulated a novel condition for the optimality of treating interference as noise in interference channels, and identified the theoretical impact of topology on interference management in wireless networks

Publications

Book Chapters

B1 **N. NaderiAlizadeh**, M. A. Maddah-Ali, and A. S. Avestimehr, "Edge Caching," in *Information Theoretic Perspectives on 5G Systems and Beyond*, Cambridge University Press, Jul. 2022

Preprints

P9 S. Patel and **N. NaderiAlizadeh**, "Context-aware protein representations using protein language models and optimal transport," Jan. 2026

P8 A. Shahbazi, P. He, A. Abbasi, Y. Bai, X. Liu, E. Akbari, D. Salehi, **N. NaderiAlizadeh**, and S. Kolouri, "LUNA: Linear universal neural attention with generalization guarantees," Dec. 2025

P7 X. Liu, E. Akbari, R. D. Martin, **N. NaderiAlizadeh**, and S. Kolouri, "Efficient transferable optimal transport via min-sliced transport plans," Nov. 2025

P6 **N. NaderiAlizadeh**, C. Dallago, E. J. Soderblom, and S. H. Soderling, "Protein language model-aligned spectra embeddings for *de novo* peptide sequencing," Oct. 2025

P5 D. Fenwick, **N. NaderiAlizadeh**, V. Tarokh, N. Felice, D. Clark, J. Rajagopal, A. Kapadia, B. Wildman-Tobriner, E. Samei, and E. Abadi, "Reinforcement learning-based optimization of CT acquisition and reconstruction parameters through virtual imaging trials," Oct. 2025

P4 A. Shahbazi, C. Thrash, Y. Bai, K. Hamm, **N. NaderiAlizadeh**, and S. Kolouri, "LOTFormer: Doubly-stochastic linear attention via low-rank optimal transport," Sep. 2025

P3 Y. B. Uslu, **N. NaderiAlizadeh**, M. Eisen, and A. Ribeiro, "Fast state-augmented learning for wireless resource allocation with dual variable regression," Jun. 2025

P2 **N. NaderiAlizadeh**, D. Salehi, X. Liu, and S. Kolouri, "Constrained sliced Wasserstein embedding," Jun. 2025

P1 J. Elenter, **N. NaderiAlizadeh**, T. Javidi, and A. Ribeiro, "Primal dual continual learning: Balancing stability and plasticity through adaptive memory allocation," May 2024

Journal Papers

J14 **N. NaderiAlizadeh** and R. Singh, "Aggregating residue-level protein language model embeddings with optimal transport," *Bioinformatics Advances*, Mar. 2025

J13 S. Das, **N. NaderiAlizadeh**, and A. Ribeiro, "Learning state-augmented policies for information routing in communication networks," *IEEE Transactions on Signal Processing*, vol. 73, pp. 204-218, Dec. 2024

J12 S. Hadou, **N. NaderiAlizadeh**, and A. Ribeiro, "Robust stochastically-descending unrolled networks," *IEEE Transactions on Signal Processing*, vol. 72, pp. 5484-5499, Nov. 2024

J11 **N. NaderiAlizadeh**, M. Eisen, and A. Ribeiro, "Learning resilient radio resource management policies with graph neural networks," *IEEE Transactions on Signal Processing*, vol. 71, pp. 995-1009, Mar. 2023

J10 **N. NaderiAlizadeh**, M. Eisen, and A. Ribeiro, "State-augmented learnable algorithms for resource management in wireless networks," *IEEE Transactions on Signal Processing*, vol. 70, pp. 5898-5912, Dec. 2022

J9 **N. NaderiAlizadeh**, J. Sydir, M. Simsek, and H. Nikopour, "Resource management in wireless networks via multi-agent deep reinforcement learning," *IEEE Transactions on Wireless Communications*, vol. 20, no. 6, pp. 3507-3523, Jun. 2021

J8 P. Dong, H. Zhang, G. Y. Li, I. S. Gaspar, and **N. NaderiAlizadeh**, "Deep CNN based channel estimation for mmWave massive MIMO systems," *IEEE Journal of Selected Topics in Signal Processing*, vol. 65, no. 5, pp. 989–1000, Sep. 2019

J7 **N. NaderiAlizadeh**, M. A. Maddah-Ali, and A. S. Avestimehr, "Cache-aided interference management in wireless cellular networks," *IEEE Transactions on Communications*, vol. 67, no. 5, pp. 3376–3387, May 2019

J6 H. Yang, **N. NaderiAlizadeh**, A. S. Avestimehr, and J. Lee, "Topological interference management with reconfigurable antennas," *IEEE Transactions on Communications*, vol. 65, no. 11, pp. 4926–4939, Nov. 2017

J5 **N. NaderiAlizadeh**, A. El Gamal, and A. S. Avestimehr, "Fundamental limits of non-coherent interference alignment via matroid theory," *IEEE Transactions on Information Theory*, vol. 63, no. 10, pp. 6573–6586, Oct. 2017

J4 **N. NaderiAlizadeh**, M. A. Maddah-Ali, and A. S. Avestimehr, "Fundamental limits of cache-aided interference management," *IEEE Transactions on Information Theory*, vol. 63, no. 5, pp. 3092–3107, May 2017

J3 C. Geng, **N. NaderiAlizadeh**, A. S. Avestimehr, and S. Jafar, "On the optimality of treating interference as noise," *IEEE Transactions on Information Theory*, vol. 61, no. 4, pp. 1753–1767, Apr. 2015

J2 **N. NaderiAlizadeh** and A. S. Avestimehr, "Interference networks with no CSIT: Impact of topology," *IEEE Transactions on Information Theory*, vol. 61, no. 2, pp. 917–938, Feb. 2015

J1 **N. NaderiAlizadeh** and A. S. Avestimehr, "ITLinQ: A new approach for spectrum sharing in device-to-device communication systems," *IEEE Journal on Selected Areas in Communications*, vol. 32, no. 6, pp. 1139–1151, Jun. 2014

Conference Papers

C37 X. Chen, **N. NaderiAlizadeh**, A. Ribeiro, and S. Saeedi Bidokhti, "Decentralized learning strategies for estimation error minimization with graph neural networks," to appear in *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, May 2026

C36 S. Hadou, **N. NaderiAlizadeh**, and A. Ribeiro, "Stochastic unrolled neural networks," to appear in *Proceedings of the Conference on Parsimony and Learning (CPAL)*, Mar. 2026

C35 R. Garcia Camargo, Z. Wang, **N. NaderiAlizadeh**, and A. Ribeiro, "Long-term wireless link scheduling with state-augmented graph neural networks," in *Proceedings of the NeurIPS Workshop on AI and ML for Next-Generation Wireless Communications and Networking (AI4NextG)*, Dec. 2025

C34 R. Garcia Camargo, Z. Wang, **N. NaderiAlizadeh**, and A. Ribeiro, "Wireless link scheduling with state-augmented graph neural networks," in *Proceedings of the 59^{th} Asilomar Conference on Signals, Systems, and Computers*, Oct. 2025

C33 A. Shahbazi, E. Akbari, D. Salehi, X. Liu, **N. NaderiAlizadeh**, and S. Kolouri, "ESPFormer: Doubly-stochastic attention with expected sliced transport plans ," in *Proceedings of the 42^{nd} International Conference on Machine Learning (ICML)*, Jul. 2025

C32 D. Fenwick, **N. NaderiAlizadeh**, V. Tarokh, D. Clark, J. Rajagopal, A. Kapadia, N. Felice, E. Samei, and E. Abadi, "Black-box optimization of CT acquisition and reconstruction parameters: A reinforcement learning approach," in *Proceedings of SPIE Physics of Medical Imaging*, Apr. 2025

C31 S. Das, **N. NaderiAlizadeh**, and A. Ribeiro, "State-augmented opportunistic routing in wireless communication systems with graph neural networks," in *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Apr. 2025

C30 Y. B. Uslu, R. Doostnejad, A. Ribeiro, and **N. NaderiAlizadeh**, "Learning to slice Wi-Fi networks: A state-augmented primal-dual approach," in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Dec. 2024

C29 S. Das, **N. NaderiAlizadeh**, and A. Ribeiro, "State-augmented information routing in communication systems with graph neural networks," in *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Apr. 2024

C28 J. Elenter, **N. NaderiAlizadeh**, and A. Ribeiro, "A Lagrangian duality approach to active learning," in *Proceedings of Advances in Neural Information Processing Systems (NeurIPS)*, Dec. 2022

C27 **N. NaderiAlizadeh**, M. Eisen, and A. Ribeiro, "Adaptive wireless power allocation with graph neural networks," in *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, May 2022

C26 **N. NaderiAlizadeh**, J. F. Comer, R. W. Andrews, H. Hoffmann, and S. Kolouri, "Pooling by sliced-Wasserstein embedding," in *Proceedings of Advances in Neural Information Processing Systems (NeurIPS)*, Dec. 2021

C25 C. Sun, **N. NaderiAlizadeh**, and M. Hashemi, "Optimizing the configuration of intelligent reflecting surfaces using deep learning," in *Proceedings of IEEE Global Communications Conference (GLOBECOM) Workshops*, Dec. 2021

C24 **N. NaderiAlizadeh**, "Contrastive self-supervised learning for wireless power control," in *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Jun. 2021

C23 S. Kolouri*, **N. NaderiAlizadeh***, G. K. Rohde, and H. Hoffmann, "Wasserstein embedding for graph learning," in *Proceedings of the Ninth International Conference on Learning Representations (ICLR)*, , May 2021

C22 **N. NaderiAlizadeh**, M. Eisen, and A. Ribeiro, "Wireless power control via counterfactual optimization of graph neural networks," in *Proceedings of IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, May 2020 (*invited paper*)

C21 **N. NaderiAlizadeh**, J. Sydir, M. Simsek, and H. Nikopour, "Resource management in wireless networks via multi-agent deep reinforcement learning," in *Proceedings of IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, May 2020

C20 J. F. Comer, R. W. Andrews, **N. NaderiAlizadeh**, S. Kolouri, and H. Hoffmann, "SAR automatic target recognition with less labels," in *Proceedings of SPIE Automatic Target Recognition*, Apr. 2020 (*invited paper*)

C19 **N. NaderiAlizadeh** and S. M. Asghari, "Learning to code: Coded caching via deep reinforcement learning," in *Proceedings of Asilomar Conference on Signals, Systems, and Computers*, Nov. 2019

C18 **N. NaderiAlizadeh** and M. Hashemi, "Energy-aware multi-server mobile edge computing: A deep reinforcement learning approach," in *Proceedings of Asilomar Conference on Signals, Systems, and Computers*, Nov. 2019

C17 V. Narasimha Swamy, **N. NaderiAlizadeh**, V. Nallampatti Ekambaram, S. Talwar, and A. Sahai, "Monitoring under-modeled rare events for URLLC," in *Proceedings of IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, Jul. 2019 (*invited paper*)

C16 P. Dong, H. Zhang, G. Y. Li, **N. NaderiAlizadeh**, and I. S. Gaspar, "Deep CNN for wideband mmWave massive MIMO channel estimation using frequency correlation," in *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, May 2019

C15 O. Orhan, H. Nikopour, J. Nam, **N. NaderiAlizadeh**, and S. Talwar, "A power efficient fully digital beamforming architecture for mmWave communications," in *Proceedings of IEEE 89th Vehicular Technology Conference (VTC)*, Apr. 2019

C14 **N. NaderiAlizadeh**, H. Nikopour, O. Orhan, and S. Talwar, "Feedback-based interference management in ultra-dense networks via parallel dynamic cell selection and link scheduling," in *Proceedings of IEEE International Conference on Communications (ICC)*, May 2018

C13 **N. NaderiAlizadeh**, O. Orhan, H. Nikopour, and S. Talwar, "Ultra-dense networks in 5G: Interference management via non-orthogonal multiple access and treating interference as noise," in *Proceedings of IEEE 86th Vehicular Technology Conference (VTC)*, Sep. 2017

C12 **N. NaderiAlizadeh**, M. A. Maddah-Ali, and A. S. Avestimehr, "On the optimality of separation between caching and delivery in general cache networks," in *Proceedings of IEEE International Symposium on Information Theory (ISIT)*, Jun. 2017

C11 **N. NaderiAlizadeh**, M. A. Maddah-Ali, and A. S. Avestimehr, "Cache-aided interference management in wireless cellular networks," in *Proceedings of IEEE International Conference on Communications (ICC)*, May 2017

C10 **N. NaderiAlizadeh**, M. A. Maddah-Ali, and A. S. Avestimehr, "Fundamental limits of cache-aided interference management," in *Proceedings of IEEE International Symposium on Information Theory (ISIT)*, Jul. 2016

C9 H. Yang, **N. NaderiAlizadeh**, A. S. Avestimehr, and J. Lee, "Topological interference management with reconfigurable antennas," in *Proceedings of IEEE International Symposium on Information Theory (ISIT)*, Jul. 2016

C8 A. El Gamal, **N. NaderiAlizadeh**, and A. S. Avestimehr, "When does an ensemble of matrices with randomly scaled rows lose rank?," in *Proceedings of IEEE International Symposium on Information Theory (ISIT)*, Jun. 2015

C7 **N. NaderiAlizadeh**, A. El Gamal, and A. S. Avestimehr, "Topological interference management with just retransmission: What are the "best" topologies?," in *Proceedings of IEEE International Conference on Communications (ICC)*, Jun. 2015

C6 **N. NaderiAlizadeh**, D. T.H. Kao, and A. S. Avestimehr, "How to utilize caching to improve spectral efficiency in device-to-device wireless networks," in *Proceedings of 52nd Annual Allerton Conference on Communication, Control, and Computing*, Oct. 2014 (*invited paper*)

C5 **N. NaderiAlizadeh** and A. S. Avestimehr, "ITLinQ: A new approach for spectrum sharing in device-to-device communication systems," in *Proceedings of IEEE International Symposium on Information Theory (ISIT)*, Jul. 2014

C4 **N. NaderiAlizadeh** and A. S. Avestimehr, "ITLinQ: A new approach for spectrum sharing," in *Proceedings of IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN)*, Apr. 2014

C3 C. Geng, **N. NaderiAlizadeh**, A. S. Avestimehr, and S. Jafar, "On the optimality of treating interference as noise," in *Proceedings of 51st Annual Allerton Conference on Communication, Control, and Computing*, Oct. 2013

C2 **N. NaderiAlizadeh** and A. S. Avestimehr, "Impact of topology on interference networks with no CSIT," in *Proceedings of IEEE International Symposium on Information Theory (ISIT)*, Jul. 2013

C1 O. Javidbakht, **N. NaderiAlizadeh**, and S. M. Razavizadeh, "Dynamic relay selection and resource allocation in cooperative networks based on OFDM," in *Proceedings of 11th Sustainable Wireless Technologies (European Wireless) Conference*, Apr. 2011

Selected Honors and Awards

2017 **Bronze Prize**, *23rd Samsung Electronics HumanTech Paper Contest*

2016 **Shannon Centennial Student Competition Finalist**, *Nokia Bell Labs*

2015–2016 **Ming Hsieh Institute Ph.D. Scholar**, *University of Southern California*

2015 **Best Pitch Award**, *Ming Hsieh Institute Research Festival, University of Southern California*

2014 **NSF Travel Grant**, *IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN)*

2013 **IBM Travel Grant**, *IEEE International Symposium on Information Theory (ISIT)*

2011 **Irwin and Joan Jacobs Scholarship**, *Cornell University*

2008 **Dean's Honorary Award**, *Sharif University of Technology*

2007 **1st Place out of 270,000+ Participants**, *Nationwide Entrance Examination of Iranian Universities*

Patents

2024 W. Mao, M. Narasimha, J. Han, M. Simsek, H. Nikopour, S. Palat, and **N. NaderiAlizadeh**, "Techniques for Integrated Access and Backhaul (IAB) Nodes," *U.S. Patent 12,185,163*

2024 Q. Jiang, E. Clough, **N. NaderiAlizadeh**, and H. Hoffmann, "Graph-learning Neural Networks Using Spectral Data for Detection of Defects in Additive Manufacturing," *US Patent App. 18/324,878*

2024 M. T. Galeev, O. Orhan, A. L. Amadjikpe, B. Grewell, **N. NaderiAlizadeh**, H. Nikopour, S. Sudhakaran, S. Talwar, L. Xian, "Millimeter Wave (mmWave) System and Methods," *U.S. Patent 11,956,001*

2022 R. Balakrishnan, N. Himayat, A. Anand, M. Akdeniz, S. Dhakal, M. Eisen, and **N. NaderiAlizadeh**, "Apparatus, System, Method and Computer-Implemented Storage Media to Implement Radio Resource Management Policies using Machine Learning," *US Patent App. 17/712,050*

2022 O. Orhan, E. Aryafar, B. Carlton, N. Himayat, C. Hull, **N. NaderiAlizadeh**, H. Nikopour, S. Pellerano, M. Rahman, S. Talwar, and J. Zhu, "Non-Orthogonal Multiple-Access and Multi-Finger Beamforming," *U.S. Patent 11,528,066*

2021 M. Akdeniz, N. Himayat, R. Balakrishnan, S. Dhakal, M. Eisen, and **N. NaderiAlizadeh**, "Federated Learning for Multiple Access Radio Resource Management Optimizations," *US Patent App. 17/921,549*

2020 **N. NaderiAlizadeh**, H. Nikopour, S. Talwar, O. Orhan, B. Sadeghi, C. Cordeiro, and H. Moustafa, "Interference Mitigation in Ultra-Dense Wireless Networks," *U.S. Patent 10,701,641*

2019 A. S. Avestimehr and **N. NaderiAlizadeh**, "Spectrum Sharing in Device-to-Device Communication Systems," *U.S. Patent 10,200,873*

Teaching Experience

2025 **Tutorial Co-Presenter**, *AAAI Conference*
Graph Neural Networks: Architectures, Fundamental Properties and Applications

2023 **Short Course Co-Presenter**, *IEEE ICASSP*
Graph Neural Networks

2022 **Co-Instructor**, *University of Pennsylvania*
ESE 5140: Graph Neural Networks

2011 **Teaching Assistant**, *Sharif University of Technology*
Fundamentals of Wireless Communications

2010 **Teaching Assistant**, *Sharif University of Technology*
Communication Systems

2010 **Teaching Assistant**, *Iran University of Science and Technology*
Communications I

2010 **Laboratory Teaching Assistant**, *Sharif University of Technology*
Logic Circuits and Digital Systems

2009 **Laboratory Teaching Assistant**, *Sharif University of Technology*
Analog Circuits

Professional Service

2026 **Early Career Reviewer**, *Biodata Management and Analysis (BDMA) Study Section, National Institutes of Health (NIH)*

2025 **Area Chair**, *Workshop on Constrained Optimization for Machine Learning, Neural Information Processing Systems (NeurIPS)*

2024 **Co-Organizer**, *Workshop on Accessible and Efficient Foundation Models for Biological Discovery, International Conference on Machine Learning (ICML)*

2023 **Ph.D. Admissions Committee Member**, *Department of Electrical and Systems Engineering, University of Pennsylvania*

2023 **Co-Organizer**, *Workshop on Resource-Constrained Learning in Wireless Networks, Conference on Machine Learning and Systems (MLSys)*

2023 **Co-Organizer**, *North American School of Information Theory, University of Pennsylvania*

2023 **Technical Program Committee Member**, *International Symposium on Modeling and Optimization in Mobile, Ad hoc, and Wireless Networks (WiOpt)*

2022–2023 **Young Professionals Representative**, *Student and Outreach Subcommittee, IEEE Information Theory Society*

2022 **Technical Program Committee Member**, *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*

2022 **Technical Program Committee Member**, *IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*

2022 **Guest Editor**, *IEEE Internet of Things Magazine, Special Issue on an End-to-End Machine Learning Perspective on Industrial IoT*

2022 **Technical Program Committee Member**, *IEEE Wireless Communications and Networking Conference (WCNC)*

2022 **Special Sessions Chair**, *International Symposium on Wireless Communication Systems (ISWCS)*

2020–2022 **Associate Editor**, *IEEE Journal on Selected Areas in Communications, Special Series on Machine Learning in Communications*

2021 **Technical Program Committee Member**, *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*

2021 **Technical Program Committee Member**, *6^{th} Content Caching and Delivery in Wireless Networks (CCDWN) Workshop, International Symposium on Modeling and Optimization in Mobile, Ad hoc, and Wireless Networks (WiOpt)*

2020 **Technical Program Committee Member**, *IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*

2020 **Special Session Organizer**, Interplay between Machine Learning and Resource Management in Wireless Networks, *IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*

2019 **Technical Program Committee Member**, *5^{th} International Workshop on Non-Orthogonal Multiple Access Techniques for 5G, IEEE International Conference on Communications (ICC)*

2018 **Technical Program Committee Member**, *4^{th} International Workshop on Non-Orthogonal Multiple Access Techniques for 5G, IEEE Global Communications Conference (Globecom)*

2013–2025 **Invited Journal Reviewer**

- Bioinformatics
- IEEE Transactions on Information Forensics & Security
- IEEE Transactions on Signal Processing
- IEEE Journal on Selected Areas in Information Theory
- IEEE Transactions on Information Theory
- IEEE Journal on Selected Areas in Communications
- IEEE Transactions on Communications
- IEEE/ACM Transactions on Networking
- IEEE Transactions on Wireless Communications
- IEEE Transactions on Mobile Computing
- IEEE Transactions on Vehicular Technology
- IEEE Communications Letters
- EURASIP Journal on Wireless Communications and Networking

2012–2025 **Invited Conference Reviewer**

- Neural Information Processing Systems (NeurIPS)

- International Conference on Machine Learning (ICML)
- International Conference on Learning Representations (ICLR)
- International Conference on Artificial Intelligence and Statistics (AISTATS)
- Learning for Dynamics & Control Conference (L4DC)
- IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)
- ACM Conference on Computer and Communications Security (CCS)
- IEEE International Symposium on Information Theory (ISIT)
- IEEE International Workshop on Machine Learning for Signal Processing (MLSP)
- IEEE International Conference on Communications (ICC)
- IEEE Global Communications Conference (GLOBECOM)
- IEEE Wireless Communications and Networking Conference (WCNC)
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)
- IEEE Information Theory Workshop (ITW)
- International Symposium on Modeling and Optimization in Mobile, Ad hoc, and Wireless Networks (WiOpt)
- International ITG Conference on Systems, Communications and Coding (SCC)
- Australian Communications Theory Workshop (AusCTW)
- Iran Workshop on Communication and Information Theory (IWCIT)

Selected Presentations

2024 **Learning Resilient Radio Resource Management Policies With Graph Neural Networks**, *AFRL/AFOSR University Center of Excellence on Agile Waveform Design for Communication Networks in Contested Environments, Duke University (invited talk)*

2023 **Learning With Constraints: Fundamentals And Applications In Wireless Networking, Active Learning, And Federated Learning**, *School of Computing and Information Sciences, Florida International University (invited talk)*

2023 **Machine Learning for Autonomous Wireless Networks**, *Department of Electrical and Computer Engineering, Duke University (invited talk)*

2023 **State-Augmented Algorithms for Wireless Resource Management with Graph Neural Networks**, *ITA Workshop*

2022 **State-Augmented Algorithms for Wireless Resource Management with Graph Neural Networks**, *Asilomar Conference on Signals, Systems, and Computers*

2022 **Machine Learning for Resource Management in Wireless Networks under Constraints**, *University of California San Diego*

2022 **Adaptive Wireless Power Allocation with Graph Neural Networks**, *IEEE ICASSP*

2021 **Pooling by Sliced-Wasserstein Embedding**, *NeurIPS*

2021 **Contrastive Self-Supervised Learning for Wireless Power Control**, *IEEE ICASSP*

2021 **Radio Resource Management via Information Theory and Machine Learning**, *Department of Electrical Engineering, Yale University (invited talk)*

2020 **Resource Management in Wireless Networks through the Lens of Information Theory and Machine Learning**, *Wireless ML Seminar Series, The University of Texas at Austin (invited talk)*

2020 **Wireless Power Control via Counterfactual Optimization of Graph Neural Networks**, *IEEE SPAWC*

2020 **Resource Management in Wireless Networks via Multi-Agent Deep Reinforcement Learning**, *IEEE SPAWC*

2019 **Learning to Code: Coded Caching via Deep Reinforcement Learning**, *Asilomar Conference on Signals, Systems, and Computers*

2019 **Interference Mitigation Techniques in Ultra-Dense Wireless Networks**, *ITA Workshop*

2019 **Dynamic Interference Management in Wireless Networks: Model-Based and Learning-Based Approaches**, *HRL Laboratories*

2018 **Feedback-Based Interference Management in Ultra-Dense Networks via Parallel Dynamic Cell Selection and Link Scheduling**, *IEEE ICC*

2017 **Ultra-Dense Networks in 5G: Interference Management via Non-Orthogonal Multiple Access and Treating Interference as Noise**, *IEEE VTC Fall*

2016 **Fundamentals of Two User-Centric Architectures for 5G: Device-to-Device Communication and Cache-Aided Interference Management**, *Intel Corporation*

2016 **Foundations of D2D Communication and Cache-Aided Interference Management**, *ITA Workshop*

2014 **ITLinQ: A New Approach for Spectrum Sharing in Device-to-Device Communication Systems**, *IEEE ISIT*

2013 **Impact of Topology on Interference Networks with No CSIT**, *IEEE ISIT*

Mentorship Experience

Students

2025– **Yuejun Xu (Master's Student)**, *Duke University*

2025– **Michael Zhou (Undergraduate Student)**, *Duke University*

2024– **Darian Salehi (Undergraduate Student)**, *Duke University*

2024– **Lucas Ma (Undergraduate Student)**, *Duke University*

2024– **Emma Bennett (Undergraduate Student)**, *Duke University*

2024– **Bowen Jiang (Undergraduate Student)**, *Duke University*

2024– **Sahil Patel (Undergraduate Student)**, *Duke University*

2024– **Kevin Han (Undergraduate Student)**, *Duke University*

2025 **August Hao (Undergraduate Student)**, *Duke University*

2024–2025 **Yutian "Eleanor" Chen (Master's Student)**, *Duke University*

2024–2025 **Hanchen Huang (Master's Student)**, *Duke University*

2024–2025 **Tony Cao (Undergraduate Student)**, *Duke University*

2024–2025 **Andy Wang (Undergraduate Student)**, *Duke University*

2024–2025 **Islam Tayeb (Undergraduate Student)**, *Duke University*

2024 **Mengyao Shi (Master's Student)**, *Duke University*

2024 **Luke Wang (Master's Student)**, *Duke University*

2024 **Angela Predolac (Undergraduate Student)**, *Duke University*

2024 **Jane Mo (Undergraduate Student)**, *Duke University*

2024 **Arnav Meduri (Undergraduate Student)**, *Duke University*

2022–2025 **Samar Hadou (Ph.D. Student)**, *University of Pennsylvania*
2022–2025 **Yiğit Berkay Uslu (Ph.D. Student)**, *University of Pennsylvania*
2022–2025 **Sourajit Das (Ph.D. Student)**, *University of Pennsylvania*
2022–2024 **Kamila Kunes (Ph.D. Student)**, *University of California, Berkeley*
2021–2024 **Juan Elenter (Ph.D. Student)**, *University of Pennsylvania*
2022–2023 **Ignacio Hounie (Ph.D. Student)**, *University of Pennsylvania*
2021–2023 **Juan Cerviño (Ph.D. Student)**, *University of Pennsylvania*
2021–2023 **Xingran Chen (Ph.D. Student)**, *University of Pennsylvania*
2021 **Chuan Sun (Master's Student)**, *University of Kansas*

Events

2022 **Diversity Equity Engagement at Penn (DEEPenn) in STEM**, *University of Pennsylvania*
2021 **Industry Career Planning**, *IEEE International Symposium on Information Theory (ISIT)*