# Parinaz Naghizadeh


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## Education

**Ph.D., Electrical Engineering**, University of Michigan — August 2016
Advisor: Mingyan Liu
Ph.D. thesis: "On the Provision of Public Goods on Networks: Incentives, Exit Equilibrium, and Applications to Cyber Security"

**M.Sc., Mathematics**, University of Michigan — May 2014

**M.Sc., Electrical Engineering**, University of Michigan — May 2013

**B.Sc., Electrical Engineering**, Sharif University of Technology, Iran — June 2010

## Appointments

**Ohio State University**

Assistant Professor, Operations Research, Integrated Systems Engineering — Sep. 2019 - present
Assistant Professor, Electrical and Computer Engineering — Sep. 2019 - present
Affiliate, Translational Data Analytics Institute — Dec. 2019 - present

**Purdue University and Princeton University Edge Lab** — Sep. 2017 - Aug. 2019
Postdoctoral Research Associate, College of Engineering
Advisor: Mung Chiang

**University of Michigan** — Sep. 2016 - Aug. 2017
Postdoctoral Research Fellow, Electrical Engineering and Computer Science
Advisor: Mingyan Liu

## Honors and Awards

- **NSF CAREER Award** — 2022
- Ethics Circle Fellow, Center for Ethics and Human Values, Ohio State University — 2021
- **Rising Stars in EECS**, Stanford University — 2017
- Finalist for ProQuest Distinguished Dissertation Award, University of Michigan — 2016
- Honorable Mention for Richard and Eleanor Towner prize for outstanding Ph.D. research, University of Michigan — 2015
- **Barbour Scholarship**, University of Michigan — 2014 - 2015
- Iran's National Elites Foundation Scholarship — 2007 - 2010
- President's Honorary Award at Sharif University of Technology — 2006
- Ranked $14^{th}$ among nearly 350,000 participants in Iran's Physics and Mathematics Nation-wide Universities Entrance Exam — 2006

## Grant Support

- PI. *"CAREER: Decision Making, Learning, and Incentive Design in Multilayer Networks"*
  National Science Foundation (NSF), $550,000. 2022 - 2027
- PI. *"Data Diversity and Debiasing through Exploration and Fairness"*
  Cisco Research, $120,067. 2022
- OSU PI. *"FAI: Fairness in Machine Learning with Human in the Loop"*
  with Yang Liu (UCSC, lead), Mingyan Liu (Michigan), Ming Yin (Purdue)
  National Science Foundation (NSF) and Amazon, $240,000 (of $1M total). 2021 - 2024

## Research Keywords

Network economics; game theory; algorithmic economics; reinforcement learning; economics of cyber security.

## Publications

### Submitted and Working Papers:

[S1] Y. Liao, P. Naghizadeh. "Social Bias Meets Data Bias: The Impacts of Labeling and Measurement Errors on Fairness Criteria". *Under review*, 2022.

[S2] Y. Yang, Y. Liu, P. Naghizadeh. "Adaptive Data Debiasing Through Bounded Exploration", arXiv preprint arXiv:2110.13054. *Under review*, 2022.

[S3] K. Jin, P. Naghizadeh, M. Liu. "Structured Network Games: Leveraging Relational Information in Equilibrium Analysis". *Under review in ACM Transactions on Economics and Computation.*

[S4] X. Zheng, P. Naghizadeh, A. Yener. "DiPLe: Learning Directed Collaboration Graphs for Peer-to-Peer Personalized Learning". *Under review in ITW'22.*

[W1] P. S. Oruganti, P. Naghizadeh, Q. Ahmed. "The Impact of Network Design Interventions on the Security of Interdependent Systems". *In preparation (earlier version in CDC'21).*

### Journal Papers:

[J1] M. Abdallah, P. Naghizadeh, A. R. Hota, T. Cason, S. Bagchi, S. Sundaram. "Behavioral and Game-Theoretic Security Investments in Interdependent Systems Modeled by Attack Graphs", *IEEE Transactions on Control of Network Systems*, 7 (4): 1585-1596, 2020.

[J2] P. Naghizadeh, M. Liu. "Using Private and Public Assessments in Security Information Sharing Agreements", *IEEE Transactions on Information Forensics and Security*, 15 (1): 1801-1814, 2020.

[J3] D. Ghavidel, P. Naghizadeh, M. Liu, V. Gupta. "A Reputation-Based Contract for Repeated Crowdsensing with Costly Verification", *IEEE Transactions on Signal Processing*, 67 (23): 6092-6104, 2019.

[J4] P. Naghizadeh, M. Liu. "Provision of Public Goods on Networks: On Existence, Uniqueness, and Centralities", *IEEE Transactions on Network Science and Engineering*, 5 (3): 225-236, 2018.

[J5] M. Khalili, P. Naghizadeh, M. Liu. "Designing Cyber Insurance Policies: The Role of Pre-Screening and Security Interdependence". *IEEE Transactions on Information Forensics and Security*, 13 (9): 2226-2239, 2018.

[J6] P. Naghizadeh, M. Liu. "Opting out of Incentive Mechanisms: A Study of Security as a Non-Excludable Public Good", *IEEE Transactions on Information Forensics and Security*, 11 (12): 2790-2803, 2016.

[J7] A. Sarabi, P. Naghizadeh, Y. Liu, M. Liu. "Risky Business: Fine-grained Data Breach Prediction Using Business Profiles", *Journal of Cybersecurity*, 2 (1): 15-28, Oxford University Press, 2016.

[J8] P. Naghizadeh, M. Liu. "Perceptions and Truth: A Mechanism Design Approach to Crowd-Sourcing Reputation", *IEEE/ACM Transactions on Networking*, 24 (1): 163-176, 2016.

## Refereed Conference and Workshop Papers:

[C1] X. Zhang, M. Khalili, K. Jin, P. Naghizadeh, M. Liu. "Fairness Interventions as (Dis)incentives for Strategic Manipulation". *The Thirty-ninth International Conference on Machine Learning (ICML)*, Jul. 2022.

[C2] K. Jin, X. Zhang, M. Khalili, P. Naghizadeh, M. Liu. "Subsidy Mechanisms for Strategic Classification and Regression Problems". *ACM Conference on Economics and Computation (EC'22)*, Jul. 2022.

[C3] M. Abdallah, D. Woods, P. Naghizadeh, I. Khalil, T. Cason, S. Bagchi, S. Sundaram. "TASHAROK: Using Mechanism Design for Enhancing Security Resource Allocation in Interdependent Systems". *IEEE Symposium on Security and Privacy (IEEE S&P)*, May 2022.

[C4] Y. Liao, P. Naghizadeh. "The Impacts of Labeling Biases on Fairness Criteria". *ICLR Workshop on Socially Responsible Machine Learning*, Apr. 2022.

[C5] K. Jin, X. Zhang, M. Khalili, P. Naghizadeh, and M. Liu. "Incentive Mechanisms in Strategic Learning". *ICLR Workshop on Socially Responsible Machine Learning*, Apr. 2022.

[C6] P. S. Oruganti, P. Naghizadeh, Q. Ahmed. "The Impact of Network Design Interventions on CPS Security", *Control and Decision Conference (CDC)*, Dec. 2021.

[C7] M. Abdallah, D. Woods, P. Naghizadeh, I. Khalil, T. Cason, S. Sundaram, S. Bagchi. "Morshed: Guiding Behavioral Decision-Makers towards Better Security Investment in Interdependent Systems", *the 16$^{th}$ ACM Asia Conference on Computer and Communications Security (ASIACCS'21)*, Jun. 2021.

[C8] P. Naghizadeh, T. Nguyen, S. Vardi. "The Impacts of Prediction Technologies on Relational Contracts"', *the 30$^{th}$ Workshop on Information Systems and Economics (WISE'19)*, Dec. 2019.

[C9] M. Abdallah, P. Naghizadeh, T. Cason, S. Bagchi, S. Sundaram. "Protecting Assets with Heterogeneous Valuations under Behavioral Probability Weighting", *Control and Decision Conference (CDC'19)*, Dec. 2019.

[C10] P. Naghizadeh, A. Sinha. "Adversarial Contract Design for Private Data Commercialization", *ACM Conference on Economics and Computation (EC'19)*, Jun. 2019.

[C11] M. Abdallah, P. Naghizadeh, A. R. Hota, T. Cason, S. Bagchi, S. Sundaram. "The Impact of Behavioral Probability Weighting on Security Investments in Interdependent Systems", *American Control Conference (ACC'19)*, Jul. 2019.

[C12] S. Ahn, M. Gorlatova, P. Naghizadeh, M. Chiang. "Personalized Augmented Reality Via Fog-based Imitation Learning", *IEEE Workshop on Fog Computing and the IoT (co-located with IEEE CPS-IoT Week)*, Apr. 2019.

[C13] P. Naghizadeh, M. Gorlatova, A. Lan, M. Chiang. "Hurts to Be Too Early: Benefits and Drawbacks of Communication in Multi-Agent Learning", *IEEE INFOCOM'19*, Apr. 2019.

[C14] S. Ahn, M. Gorlatova, P. Naghizadeh, M. Chiang, P. Mittal. "Adaptive Fog-Based Output Security for Augmented Reality", *ACM SIGCOMM VR/AR Network Workshop*, Aug. 2018.

[C15] P. Naghizadeh, M. Liu. "On the Uniqueness and Stability of Equilibria of Network Games", *the 55$^{th}$ Annual Allerton Conference on Communication, Control and Computing (Allerton'17)*, Oct. 2017.

[C16] M. Khalili, P. Naghizadeh, M. Liu. "Embracing Risk Dependency in Designing Cyber-Insurance Contracts", *the 55$^{th}$ Annual Allerton Conference on Communication, Control and Computing (Allerton'17)*, Oct. 2017.

[C17] M. Khalili, P. Naghizadeh, M. Liu. "Designing Cyber Insurance Policies in the Presence of Security Interdependence", *the 12$^{th}$ Workshop on the Economics of Networks, Systems and Computation (NetEcon'17)*, Jun. 2017.

[C18] D. Ghavidel, P. Naghizadeh, M. Liu, V. Gupta. "A Reputation-Based Contract for Repeated Crowdsensing with Costly Verification", *American Control Conference (ACC'17)*, May 2017.

[C19] M. Khalili, P. Naghizadeh, M. Liu. "Designing Cyber Insurance Policies: Mitigating Moral Hazard Through Security Pre-Screening", *the 7$^{th}$ International Conference on Game Theory for Networks (GameNets'17)*, May 2017.

[C20] P. Naghizadeh, M. Liu. "Exit Equilibrium: Towards Understanding Voluntary Participation in Security Games", *IEEE INFOCOM'16*, Feb. 2016.

[C21] P. Naghizadeh, M. Liu. "Inter-Temporal Incentives in Security Information Sharing Agreements", position paper, *AAAI Workshop on Artificial Intelligence for Cyber Security (AICS'16)*, Feb. 2016.

[C22] P. Naghizadeh, M. Liu. "Provision of Non-Excludable Public Goods on Networks: From Equilibrium to Centrality Measures", *the 53$^{rd}$ Annual Allerton Conference on Communication, Control and Computing (Allerton'15)*, Oct. 2015.

[C23] Y. Liu, A. Sarabi, J. Zhang, P. Naghizadeh, M. Karir, M. Bailey, M. Liu. "Cloudy with a Chance of Breach: Forecasting Cyber Security Incidents", *the 24$^{th}$ USENIX Security Symposium (USENIX'15)*, Aug. 2015.

[C24] A. Sarabi, P. Naghizadeh, Y. Liu, M. Liu. "Prioritizing Security Spending: A Quantitative Analysis of Risk Distributions for Different Business Profiles", *the 14$^{th}$ Workshop on the Economics of Information Security (WEIS'15)*, Jun. 2015.

[C25] P. Naghizadeh, M. Liu. "Budget Balance or Voluntary Participation? Incentivizing Investments in Interdependent Security Games", *the 52nd Annual Allerton Conference on Communication, Control and Computing (Allerton'14)*, Oct. 2014.

[C26] A. Sarabi, P. Naghizadeh, M. Liu. "Can Less Be More? A Game-Theoretical Analysis of Investment vs. Filtering", *the 5th Conference on Decision and Game Theory for Security (GameSec'14)*, Nov. 2014.

[C27] P. Naghizadeh, M. Liu. "Voluntary Participation in Cyber-insurance Markets", *the 13th Workshop on the Economics of Information Security (WEIS'14)*, Jun. 2014.

[C28] P. Naghizadeh, M. Liu. "Establishing Network Reputation via Mechanism Design", *the 3rd International Conference on Game Theory for Networks (GameNets'12)*, May 2012.

### Non-refereed Publications and Pre-Prints:

[P1] P. Naghizadeh, C. Joe-Wong, M. Chiang. "Paid Prioritization with Content Competition", *arXiv preprint arXiv:2007.14574*, 2020.

[P2] S. Chaterji, P. Naghizadeh, M.A. Alam, S. Bagchi, M. Chiang, D. Corman, B. Henz, S. Jana, N. Li, S. Mou, M. Oishi, C. Peng, T. Rompf, A. Sabharwal, S. Sundaram, J. Weimer, J. Weller. "Resilient Cyberphysical Systems and their Application Drivers: A Technology Roadmap", *arXiv preprint arXiv:2001.00090*, 2020.

[P3] P. Naghizadeh, M. Liu. "Inter-Temporal Incentives in Security Information Sharing Agreements", *Information Theory and Applications Workshop (ITA'16)*, Feb. 2016.

[P4] P. Naghizadeh, M. Liu. "Closing the Price of Anarchy Gap in the Interdependent Security Game", *Information Theory and Applications Workshop (ITA'14)*, Feb. 2014.

[P5] P. Naghizadeh, M. Liu. "Incentives, Quality, and Risks: A Look into the NSF Proposal Review Pilot", *arXiv preprint arXiv:1307.6528*, 2013.

## Teaching Experience

**Ohio State University**

- **ECE/ISE 7202: Reinforcement Learning** Autumn 2020 - 2022
  New graduate course I developed and taught.
  *Student evaluation of instruction for Autumn 2020 (as ISE 6194): 5.00/5.*
  *Student evaluation of instruction for Autumn 2021: 4.82/5.*

- **ISE 7200: Advanced Nonlinear Optimization** Spring 2020 – 2022
  Graduate course for first-year Ph.D. and advanced M.Sc. students.
  *Student evaluation of instruction for Spring 2020: 4.89/5.*
  *Student evaluation of instruction for Spring 2021: 4.78/5.*
  *Student evaluation of instruction for Spring 2022: 5.00/5.*

- **ISE 4100: Stochastic Modeling and Simulation** Autumn 2020, 2022
  Senior-level course on introductory stochastic modeling and discrete-event system simulation.
  *Student evaluation of instruction for Autumn 2020: 4.85/5.*

- **Guest Lectures**
  - International Studies 4850: Understanding the Global Information Society Spring 2022
  *"Fairness, Bias, and other (Ethical) Challenges of Algorithmic Decision Making"*

**University of Michigan**

- EECS 401: Probabilistic Methods in Engineering (*Graduate Student Instructor*) Fall 2012

## Advising Experience

### Current Ph.D. Students:

- Yifan Yang, ISE Spring 2020 - present
- Sura Alhanouti, ISE Autumn 2021 - present
- Pradeep S. Oruganti, ME (co-advised with Qadeer Ahmed) Autumn 2021 - present
- Amirreza Talebijamalabad, ISE Spring 2022 - present
- Kevin Chen, ECE (co-advised with Aylin Yener) Spring 2022 - present

### Current M.Sc. and B.Sc. Students:

- Altan Torkoglu, M.Sc. ECE Spring 2022 - present
- Yiqiao Liao, B.Sc. CSE Summer 2021 - present
- Jiaqi Xu, B.Sc. CSE Summer 2022 - present
- Katherine Lovelace, B.Sc. Math and African American and African Studies Summer 2022 - present

### Past M.Sc. Students:

- Abhishek Vijaykumar, M.Sc. ECE Summer 2021 - Spring 2022
  *M.Sc. project: Recursive A-Scores: A Framework for Algorithmically Fair Feature Selection.*
- Xue Zheng, M.Sc. ECE Spring 2021 - Autumn 2021
  *M.Sc. thesis: Learning Directed Collaboration Graphs for Peer-to-Peer Personalized Learning.*

### Past B.Sc. Students:

- McKenna Hollinger, B.Sc. ECE Spring 2022
- Adam Wang, B.Sc. ISE Autumn 2021 - Spring 2022
- Abby Nichter, B.Sc. ECE Summer 2021 - Spring 2022
- Russell Zhu, B.Sc. CSE, Summer 2021
- Jessica Griffin, B.Sc./M.Sc. ISE Summer 2021
- Mingwei Qiu, B.Sc. CSE Summer 2021

### Ph.D. Defense Committee Member:

- Hao Li, ECE, OSU (Advisors: Wei Zhang and Abhishek Gupta) 2021
- Mohammad Mahdi Khalili, EECS, University of Michigan (Advisor: Mingyan Liu) 2019

### Ph.D. Candidacy Exam Committee Member:

- Linda Capito Ruiz, ECE, OSU (Advisor: Keith Redmill) 2022
- Ferdous Alam, MAE, OSU (Advisor: David Hoelzle) 2021
- Pradeep Sharma Oruganti, MAE, OSU (Advisor: Qadeer Ahmed) 2021
- Shiping Shao, ECE, OSU (Advisor: Abhishek Gupta) 2021
- Jayanth Regatti, ECE, OSU (Advisor: Abhishek Gupta) 2021
- Hao Li, ECE, OSU (Advisors: Wei Zhang and Abhishek Gupta) 2020
- Tong Zhao, MAE, OSU (Advisor: Giorgio Rizzoni) 2020

### M.Sc. and B.Sc. Thesis Committee Member:

- Rachel Hunter-Rinderle, M.Sc., ISE, OSU (Advisor: Ramteen Sioshansi) 2021
- Tengmu Hu, M.Sc., Math, OSU (Advisor: Chunsheng Ban) 2020
- Jianzong Pi, B.Sc., ECE, OSU (Advisor: Abhishek Gupta) 2020

## Invited Talks

- "The Impacts of Labeling and Measurement Errors on Fairness Criteria", *Information Theory and Applications Workshop (ITA), UCSD*, May. 2022.
- "Social Bias Meets Data Bias: Towards Evaluating and Correcting for the Impacts of Biased Training Data", *Institute for Foundations of Data Science (IFDS), Ethics & Algorithm SIG (virtual)*, Apr. 2022.
- "Social Bias Meets Data Bias: Correcting Biases through Bounded Exploration and Fairness", *School of Computing and Information Sciences, Florida International University (virtual)*, Oct. 2021.
- "Fairness and Bias in Machine Learning", *1st IISE AI Conference, OSU*, Nov. 2021.
- "Fairness in Machine Learning: Data Debiasing and Human in the Loop", *OSU AI Club*, Mar. 2021.
- "The Impacts of Prediction Technologies on Relational Contracts", *Information Theory and Applications Workshop (ITA), UCSD*, Feb. 2020.
- "Improving Cyber Security through Incentive Design and Data Analytics", *Center for Automotive Research, Ohio State University*, Feb. 2020.
- "On Information Sharing in Multi-agent Reinforcement Learning", *Conference on Edge & Fog on Princeton Edge Lab 10th Anniversary, Princeton University*, May 2019.
- "Information and Incentives in Learning and Decision Making on Networks", *Department of Electrical, Computer, and Systems Engineering, Rensselaer Polytechnic Institute*, Mar. 2019.
- "Information and Incentives in Learning and Decision Making on Networks", *Department of Electrical and Computer Engineering, University of Southern California*, Mar. 2019.
- "Information and Incentives in Learning and Decision Making on Networks", *Department of Integrated Systems Engineering, Ohio State University*, Feb. 2019.

- "On Information Sharing in Multi-Agent Reinforcement Learning", *Information Theory and Applications Workshop (ITA), UCSD*, Feb. 2019.
- "Information and Incentives in Learning and Decision Making on Networks", *Department of Industrial and Enterprise Systems Engineering, University of Illinois, Urbana-Champaign*, Feb. 2019.
- "Information and Incentives in Learning and Decision Making on Networks", *Department of Electrical and Computer Engineering, University of Minnesota*, Feb. 2019.
- "Information and Incentives in Learning and Decision Making on Networks", *Department of Industrial Engineering and Management Science, Northwestern University*, Dec. 2018.
- "On Communication in Multi-agent Reinforcement Learning", *INFORMS 2018 Annual Meeting, Advanced Probability Invited Session*, Nov. 2018.
- "Network Games with Applications in Cyber Security", *Purdue CS Theory Seminar*, Apr. 2018.
- "Adversarial Contract Design for Selling Data", *Information Theory and Applications Workshop (ITA), UCSD*, Feb. 2018.
- "Network Games with Applications in Cyber Security", *Purdue ECE Seminar*, Dec. 2017.
- "Decision Making and Crowdsourcing on Networks", *EDGE lab, Princeton University*, May 2017.
- "Improving Cyber Security through Cyber Insurance and Data Analytics", *Electrical Engineering Department, Texas A&M University*, Apr. 2017.
- "Incentivizing Improved Cyber Security: A Study of Security as a Public Good"', *Computer Engineering and Systems Group Remote Seminar, Texas A&M University*, Mar. 2017.
- "Network Structures and Public Good Provision Games", *Information Theory and Applications Workshop (ITA), UCSD*, Feb. 2017.
- "Security Pre-Screening in the Design of Cyber-Insurance Policies", *CSP Seminar, Department of Electrical Engineering, University of Michigan*, Jan. 2017.
- "Incentivizing Improved Cybersecurity: A Study of Security as a Public Good", *Department of Electrical Engineering, University of California San Diego*, Nov. 2016.
- "On the Provision of Public Goods on Networks", *Communications, Networks, and Systems Seminar, Ming Hsieh Institute, University of Southern California*, Nov. 2016.
- "Provision of Public Goods on Networks and its Applications to Cyber-Security", *University of Notre Dame*, Sep. 2016.
- "Provision of Non-Excludable Public Goods on Networks: Incentives, Exit Equilibrium, and Applications to Cyber Security", *ITA Graduation Day, UCSD*, Feb. 2016.

## Service and Professional Activities

### Conference Organization:

- Submission and Publication Co-Chair, ACM MobiHoc 2022

## Technical Program Committee Member:

- ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT) 2022
- IEEE International Symposium on Information Theory (ISIT) 2022
- ACM International Symposium on Theory, Algorithmic Foundations, and Protocol Design for Mobile Networks and Mobile Computing (ACM MobiHoc) 2019 - 2022
- International Symposium on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks (WiOpt) 2019 - 2022
- Conference on Decision and Game Theory for Security (GameSec) 2021 - 2022
- ICML/ICLR workshop on Socially Responsible Machine Learning 2021 - 2022
- IEEE Sarnoff Symposium 2019
- IEEE/IFIP Conference on Dependable and Secure Networks (DSN) Fast Abstract 2019
- ACM International Conference on emerging Networking EXperiments and Technologies (CoNEXT) Student Workshop 2019

## Panel Member for Grant Proposal Review:

National Science Foundation (NSF), CISE, CCF 2022
National Science Foundation (NSF), CISE, CNS 2021

## External Reviewer for Journals and Conferences:

*Journals:* (each listed only once) IEEE Transactions on Control of Network Systems, IEEE Transactions on Automatic Control, IEEE/ACM Transactions on Networking, IEEE Transactions on Communications, IEEE Transactions on Information Theory, IEEE Transactions on Information Forensics & Security, IEEE Transactions on Neural Networks and Learning Systems, IEEE Transactions on Mobile Computing, IEEE Transactions on Dependable and Secure Computing, IEEE Transactions on Vehicular Technology, IEEE Transactions on Cognitive Communications & Networking, IEEE Security & Privacy, IEEE Networking Letter, IEEE JSAC Special issue on Smart Data Pricing for Next Generation Networks, IEEE JSAC Series on Machine Learning for Communications and Networks, ACM Transactions on Internet Technology, Computer, Information Technology and People, Physica A, International Journal on Robust and Nonlinear Control, Elsevier Computers & Industrial Engineering.

*Conferences:* CDC, ACC, GlobalSIP, ICC, VTC, SODA, NeurIPS, AISTATS.

## Departmental Service at OSU:

- OR Faculty Search Committee (ISE) 2021 - 2022
- Chair's Advisory Committee (ISE) 2020 - 2022

## Outreach, Volunteering, and Other Service:

- **Faculty advisor**, IISE student chapter, Ohio State University 2022 -
- **Judge**, Denman Undergraduate Research Forum, Ohio State University 2022

- **Volunteer**, Data Science for Women Summer Camp, TDAI, Ohio State University 2021
- **Judge**, MakeOHI/O Makeathon, Ohio State University 2021
- **Judge**, Summer Undergraduate Research Fellowship (SURF) Program, Purdue University 2018
- **Organizing member**, networking events and social gatherings for graduate women in Electrical Engineering and Computer Science, University of Michigan 2013 - 2015

**Professional Memberships:** IEEE, INFORMS.