

# Curriculum Vitae

Christopher G. Brinton, PhD

## CONTACT INFORMATION

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## PROFESSIONAL EXPERIENCE

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*Purdue University*, West Lafayette, IN

**Assistant Professor of Electrical and Computer Engineering**

*Aug 2019 – Present*

- *Research:* My research is at the intersection of network optimization and machine learning. I am advising/co-advising 11 PhD students and 3 postdocs in this area. I now have 31 journal (or conference-equivalent) papers and 51 conference papers published, and have raised ~\$7M in funding as a PI/co-PI. I received the *2022 ONR Young Investigator Program Award*, the *2022 NSF CAREER Award*, and the *2022 DARPA Young Faculty Award*.
- *Teaching:* At the undergraduate level, I co-developed a new course *Python for Data Science* that has become a requirement for ECE majors (2019-present). I also teach *Signals and Systems* (2022-present). I am co-supervising an EPICS team in data science (2021-present). At the graduate level, I teach *Wireless Communication Networks* (2022-present). I received the *2022 College of Engineering Faculty Excellence Award in Online Education* and the *2020 ECE Ruth and Joel Spira Outstanding Teaching Award*.
- *Service:* I am an Associate Editor for *IEEE Transactions on Wireless Communications* (2021-present), and have co-organized several workshops at major conferences. I am on several program committees, including as a distinguished member of the *INFOCOM TPC* (2018-present). I have also served on Purdue ECE faculty search committees (2019-2021) and the graduate admissions committee (2019-present).

*Princeton University*, Princeton, NJ

**Associate Director of the EDGE Lab**

*Sept 2018 – Jul 2019*

**Lecturer of Electrical Engineering**

*Sept 2017 – Jun 2019*

- The Princeton EDGE Lab is devoted to research, education, and innovation in edge computing, edge networking, and data science. It has graduated over 30 PhD students and postdocs.
- I taught 3-4 courses each year, including *Networks: Friends, Money, and Bytes* which covers data science, optimization, and algorithms for social, technological, and economic networks.

*Zoomi Inc.*, Chesterbrook, PA ([www.zoomi.ai](http://www.zoomi.ai))

**Head of Advanced Research (consulting)**

*Feb 2014 – May 2016, Aug 2019 – Present*

**Head of Advanced Research**

*Jun 2016 – Jul 2019*

**Co-founder**

*Jun 2013 – Present*

**Research Intern**

*Jun 2013 – Aug 2013*

- Zoomi is a big data startup company that provides predictive analytics and individualized learning for employee performance optimization. The service has been deployed to over one million users at Fortune 500 companies.
- I co-founded Zoomi based on my research pertaining to Social Learning Networks (SLN), and have led a team of 7 full-time, four part-time, and 9 summer intern data science researchers.

*The College of New Jersey*, Ewing, NJ

**Adjunct Professor of Engineering**

*Aug 2016 – May 2017*

## EDUCATION

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*Princeton University*, Princeton, NJ

### **Doctor of Philosophy in Electrical Engineering**

*May 2016*

- Research on data science and networking resulted in several papers, invited talks, and a startup company. PhD thesis won the *2016 Bede Liu Best Dissertation Award in Electrical Engineering*.
- First author of textbook *The Power of Networks: Six Principles That Connect Our Lives*, which was profiled in several media such as TIME and is being used to teach courses around the world.
- Co-instructor of three online courses to over 400,000 students, and lead TA of an in-class course.

### **Masters Degree in Electrical Engineering**

*May 2013*

- Thesis on optimization methods for power systems and communication networks

*The College of New Jersey*, Ewing, NJ

### **Bachelor of Science in Electrical Engineering**

*May 2011*

- Graduated valedictorian and summa cum laude

## PUBLICATIONS

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### **Books**

- B2. C. Brinton, M. Chiang. *The Power of Networks: Six Principles that Connect our Lives*. *Princeton University Press*, 2016. [www.powerofnetworks.org](http://www.powerofnetworks.org).
- B1. C. Brinton, M. Chiang. *Networks Illustrated: 8 Principles Without Calculus*. *EdWiser Scholastic Press*, 2013.

### **Journals and Journal-Equivalent Conferences**

- J32. R. Sahay, J. Stubbs, C. Brinton, G. Birch. An Uncertainty Quantification Framework for Counter Unmanned Aircraft Systems Using Deep Ensembles. *IEEE Sensors*, 2022.
- J31. S. Palacios, A. Ault, J. Krogmeier, B. Bhargava, C. Brinton. AGAPECert: An Auditable, Generalized, Automated, Privacy-Enabling Certification Framework with Oblivious Smart Contracts. *IEEE Transactions on Dependable and Secure Computing*, 2022.
- J30. D. Nguyen, S. Hosseinalipour, D. Love, P. Pathirana, C. Brinton. Latency Optimization for Blockchain-Empowered Federated Learning in Multi-Server Edge Computing. *IEEE Journal on Selected Areas in Communications*, 2022.
- J29. R. Sahay, S. Appadwedula, D. Love. C. Brinton. A Neural Network-Prepended GLRT-Based Framework for Signal Detection in Nonlinearity. *IEEE Communications Letters*, 2022.
- J28. J. Kim, S. Hosseinalipour, A. Marcum, T. Kim, D. Love, C. Brinton. Learning-Based Adaptive IRS Control with Limited Feedback Codebooks. *IEEE Transactions on Wireless Communications*, 2022.
- J27. J. Guo, R. Raj, D. Love, C. Brinton. Nonparametric Decentralized Detection and Sparse Sensor Selection via Multi-Sensor Online Kernel Scalar Quantization. *IEEE Transactions on Signal Processing*, Vol. 70, p. 2593-2608, 2022.
- J26. S. Azam, S. Hosseinalipour, Q. Qiu, C. Brinton. Recycling Model Updates in Federated Learning: Are Gradient Subspaces Low-Rank? *International Conference on Learning Representations (ICLR)*, 2022.
- J25. S. Azam, T. Kim, S. Hosseinalipour, C. Joe-Wong, S. Bagchi, C. Brinton. Can we Generalize and Distribute Private Representation Learning? *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2022.

- J24. S. Hosseinalipour, S. Azam, C. Brinton, N. Michelusi, V. Aggarwal, D. Love, H. Dai. Multi-Stage Hybrid Federated Learning Over Large-Scale D2D-Enabled Fog Networks. *IEEE/ACM Transactions on Networking*, Vol. 30, No. 4, p. 1569-1584, 2022.
- J23. D. Lemay, T. Doleck, C. Brinton. SLOAN: Social Learning Optimization Analysis of Networks. *International Review of Research in Open and Distributed Learning (IRRODL)*, 2022.
- J22. J. Kim, T. Kim, M. Hashemi, D. Love, C. Brinton. Minimum Overhead Beamforming and Resource Allocation in D2D Edge Networks. *IEEE/ACM Transactions on Networking*, Vol. 30, No. 4, p. 1454-1468, 2022.
- J21. R. Sahay, C. Brinton, D. Love. A Deep Ensemble-based Wireless Receiver Architecture for Mitigating Adversarial Interference in Automatic Modulation Classification. *IEEE Transactions on Cognitive Communications and Networking*, Vol. 8, No. 1, p. 71-85, 2021.
- J20. C. Chen, C. Brinton, V. Aggarwal. Latency Minimization for Mobile Edge Computing Networks. *IEEE Transactions on Mobile Computing*, 2021.
- J19. F. Lin, S. Hosseinalipour, S. Azam, C. Brinton, N. Michelusi. Semi-Decentralized Federated Learning with Cooperative D2D Local Model Aggregations. *IEEE Journal on Selected Areas in Communications*, Vol. 39, No. 12, p. 3851-3869, 2021.
- J18. R. Sahay, C. Brinton. Robust Subject-Independent P300 Waveform Classification via Signal Pre-processing and Deep Learning. *IEEE Access*, Vol. 9, p. 87579-87591, 2021.
- J17. Q. Wu, A. Hare, S. Wang, Y. Tu, Z. Liu, C. Brinton, Y. Li. BATS: A Spectral Biclustering Approach to Single Document Topic Modeling and Segmentation. *ACM Transactions on Intelligent Systems and Technology*, Vol. 12, No. 5, p. 1-29, 2021.
- J16. S. Wang, Y. Tu, Y. Ruan, S. Wagle, C. Brinton, C. Joe-Wong. Network-Aware Optimization of Distributed Learning for Fog Computing. *IEEE/ACM Transactions on Networking*, Vol. 29, No. 5, p. 2019-2032, 2021.
- J15. M. Lee, S. Hosseinalipour, C. Brinton, G. Yu, H. Dai. A Fast Graph Neural Network-Based Method for Winner Determination in Multi-Unit Combinatorial Auctions. *IEEE Transactions on Cloud Computing*, 2021.
- J14. T. Doleck, D. Lemay, C. Brinton. Evaluating the Efficiency of Social Learning Networks: Perspectives for Harnessing Learning Analytics to Improve Discussions. *Elsevier Computers & Education*, Vol. 164, p. 1-11, 2021.
- J13. H. Nguyen, V. Schwag, S. Hosseinalipour, C. Brinton, M. Chiang, H. V. Poor. Fast-Convergent Federated Learning. *IEEE Journal on Selected Areas in Communications*, Vol. 39, No. 1, p. 201-218, 2021.
- J12. S. Hosseinalipour, C. Brinton, V. Aggarwal, H. Dai, M. Chiang. From Federated to Fog Learning: Distributed Machine Learning over Heterogeneous Wireless Networks. *IEEE Communications Magazine*, Vol. 58, No. 12, p. 41-47, 2020.
- J11. S. Liu, C. Joe-Wong, J. Chen, C. Brinton, C. Tan, L. Zheng. Economic Viability of a Virtual ISP. *IEEE/ACM Transactions on Networking*, Vol. 28, No. 2, p. 902-916, 2020.
- J10. W. Chen, C. Brinton, D. Cao, M. Chiang. Early Detection Prediction of Learning Outcomes in Online Short-Courses via Learning Behaviors. *IEEE Transactions on Learning Technologies*, Vol. 12, No. 1, p. 44-58, 2019.
- J9. C. Brinton, S. Buccapatnam, L. Zheng, D. Cao, A. Lan, F. Wong, S. Ha, M. Chiang, H. V. Poor. On the Efficiency of Online Social Learning Networks. *IEEE/ACM Transactions on Networking*, Vol. 26, No. 5, p. 2076-2089, 2018.
- J8. T. Yang, C. Brinton, C. Joe-Wong, M. Chiang. Behavior-Based Grade Prediction for MOOCs via Time Series Neural Networks. *IEEE Journal of Selected Topics in Signal Processing*, Vol. 11, No. 5, p. 716-728, 2017.
- J7. C. Brinton, S. Buccapatnam, M. Chiang, H. V. Poor. Mining MOOC Clickstreams: Video-Watching Behavior versus In-Video Quiz Performance. *IEEE Transactions on Signal Processing*, Vol. 64, No. 14, p. 3677-3692, 2016.

- J6. L. Zheng, C. Joe-Wong, C. Brinton, C. Tan, S. Ha, M. Chiang. On the Viability of a Cloud Virtual Service Provider. *ACM Special Interest Group on Performance Evaluation (SIGMETRICS)*, Vol. 44, No. 1, p. 235-248, 2016.
- J5. C. Brinton, R. Rill, S. Ha, M. Chiang, R. Smith, W. Ju. Individualization for Education at Scale: MIIC Design and Preliminary Evaluation. *IEEE Transactions on Learning Technologies*, Vol. 8, No. 1, p. 136-148, 2015.
- J4. C. Brinton, M. Chiang, S. Jain, H. Lam, Z. Liu, F. Wong. Learning about social learning in MOOCs: From statistical analysis to generative model. *IEEE Transactions on Learning Technologies*, Vol. 7, No. 4, p. 346-359, 2014.
- J3. K. Reichmann, P. Iannone, C. Brinton, et al. A Symmetric-Rate, Extended-Reach 40Gb/s CWDM-TDM PON with Downstream and Upstream SOA-Raman Amplification. *IEEE Journal of Lightwave Technology*, Vol. 30, No. 4, p. 479-485, 2012.
- J2. C. Brinton, M. Wharton, A. Katz. Design and Demonstration of a Passive, Broadband Equalizer for an SLED. *Microwave Journal*, 2012.
- J1. C. Brinton, D. Hirsh. Sensitivity Enhancement in Continuous-Wave Electron Paramagnetic Resonance: Adaptive Signal Averaging versus a Moving Average. *Review of Scientific Instruments*, Vol. 81, No. 2, 2010.

### Peer-Reviewed Conferences and Competitive Workshops

- C51. Y. Chu, S. Hosseinalipour, E. Tenorio, L. Cruz, K. Douglas, A. Lan, C. Brinton. Mitigating Biases in Student Performance Prediction via Attention-Based Personalized Federated Learning. *Conference on Information and Knowledge Management (CIKM)*, 2022.
- C50. N. Yang, S. Wang, M. Chen, C. Brinton, C. Yin, W. Saad, S. Cui. Model-Based Reinforcement Learning for Quantized Federated Learning Performance Optimization. *IEEE Globecom*, 2022.
- C49. S. Wagle, S. Hosseinalipour, N. Khosravan, M. Chiang, C. Brinton. Embedding Alignment for Unsupervised Federated Learning via Smart Data Exchange. *IEEE Globecom*, 2022.
- C48. J. Kim, S. Hosseinalipour, T. Kim, D. Love, C. Brinton. Linear Coding for Gaussian Two-Way Channels. *Annual Allerton Conference on Communication, Control, and Computing (Allerton)*, 2022.
- C47. S. Zehtabi, S. Hosseinalipour, C. Brinton. Decentralized Event-Triggered Federated Learning with Heterogeneous Communication Thresholds. *IEEE Conference on Decision and Control (CDC)*, 2022.
- C46. R. Sahay, G. Birch, J. Stubbs, C. Brinton. Uncertainty Quantification-based Unmanned Aircraft System Detection using Deep Ensembles. *IEEE Vehicular Technology Conference (VTC)*, 2022.
- C45. D. Nickel, F. Lin, S. Hosseinalipour, N. Michelusi, C. Brinton. Resource-Efficient and Delay-Aware Federated Learning Design under Edge Heterogeneity. *IEEE ICC*, 2022.
- C44. J. Kim, S. Hosseinalipour, A. Marcum, T. Kim, D. Love, C. Brinton. Deep Reinforcement Learning-Based Adaptive IRS Control with Limited Feedback Codebooks. *IEEE ICC*, 2022.
- C43. A. Scarlatos, C. Brinton, A. Lan. Process-BERT: A Framework for Representation Learning on Educational Process Data. *International Conference on Educational Data Mining (EDM)*, 2022.
- C42. S. Nicoll, K. Douglas, C. Brinton. Giving Feedback on Feedback: An Assessment of Grader Feedback Construction on Student Performance. *International Conference on Learning Analytics & Knowledge (LAK)*, 2022.
- C41. Y. Chu, E. Tenorio, L. Cruz, K. Douglas, A. Lan, C. Brinton. Click-Based Student Performance Prediction: A Clustering Guided Meta-Learning Approach. *IEEE International Conference on Big Data*, 2021.
- C40. S. Azam, T. Kim, S. Hosseinalipour, C. Joe-Wong, S. Bagchi, C. Brinton. A Generalized and Distributable Generative Model for Private Representation Learning. *Neural Information Processing Systems (NeurIPS) Workshop on Deep Generative Models and Downstream Applications*, 2021.
- C39. F. Lin, S. Hosseinalipour, S. Azam, C. Brinton, N. Michelusi. Federated Learning Beyond the Star: Local D2D Model Consensus with Global Cluster Sampling. *IEEE Globecom*, 2021.

- C38. R. Sahay, D. Ries, J. Zollweg, C. Brinton. Hyperspectral Image Target Detection Using Deep Ensembles for Robust Uncertainty Quantification. *IEEE Asilomar Conference on Signals, Systems and Computers*, 2021.
- C37. J. Kim, S. Hosseinalipour, T. Kim, D. Love, C. Brinton. Multi-IRS-assisted Multi-Cell Uplink MIMO Communications under Imperfect CSI: A Deep Reinforcement Learning Approach. *IEEE ICC*, 2021.
- C36. R. Sahay, C. Brinton, D. Love. Frequency-based Automated Modulation Classification in the Presence of Adversaries. *IEEE ICC*, 2021.
- C35. M. Oh, S. Hosseinalipour, T. Kim, C. Brinton, D. Love. Channel Estimation via Successive Denoising in MIMO OFDM Systems: A Reinforcement Learning Approach. *IEEE International Conference on Communications (ICC)*, 2021.
- C34. S. Wang, M. Lee, S. Hosseinalipour, R. Morabito, M. Chiang, C. Brinton. Device Sampling for Heterogeneous Federated Learning: Theory, Algorithms, and Implementation. *IEEE INFOCOM*, 2021.
- C33. Q. Wu, C. Brinton, Z. Zhang, M. Cucuringu, A. Pizzoferrato, Z. Liu. Equity2Vec: End-to-end Deep Learning Framework for Cross-sectional Asset Pricing. *ACM International Conference on AI in Finance (ICAIF)*, 2021.
- C32. R. Sahay, D. Love, C. Brinton. Robust Automatic Modulation Classification in the Presence of Adversarial Attacks. *IEEE CISS*, 2021.
- C31. F. Lin, C. Brinton, N. Michelusi. Federated Learning with Communication Delay in Edge Networks. *IEEE Global Communications Conference (Globecom)*, 2020.
- C30. Y. Tu, Y. Ruan, S. Wagle, C. Brinton, C. Joe-Wong. Network-Aware Optimization of Distributed Learning for Fog Computing. *IEEE INFOCOM*, 2020.
- C29. J. Kim, T. Kim, M. Hashemi, C. Brinton, D. Love. Joint Optimization of Signal Design and Resource Allocation in Wireless D2D Edge Computing. *IEEE INFOCOM*, 2020.
- C28. Y. Tu, E. Tenorio, C. Brinton. An Adaptive Content Skipping Methodology based on User Behavioral Modeling. *IEEE CISS*, 2020.
- C27. P. Hansen, R. Bustamante, T. Yang, E. Tenorio, C. Brinton, M. Chiang, A. Lan. Predicting the Timing and Quality of Responses in Online Discussion Forums. *IEEE International Conference on Distributed Computing Systems (ICDCS)*, 2019.
- C26. Y. Tu, C. Brinton, A. Lan, M. Chiang. Adaptive Remediation with Multi-modal Content. *International Conference on Human Computer Interaction (HCI)*, 2019.
- C25. Y. Tu, W. Chen, C. Brinton. A Deep Learning Approach to Behavior-Based Learner Modeling. *EDM*, 2019.
- C24. T. Yang, C. Brinton, P. Mittal, M. Chiang, A. Lan. Learning Informative and Private Representations via Generative Adversarial Networks. *IEEE International Conference on Big Data*, 2018.
- C23. A. Lan, C. Brinton, J. Spencer, Z. Chen, M. Chiang. Personalized Thread Recommendation for MOOC Discussion Forums. *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD)*, 2018.
- C22. W. Chen, C. Joe-Wong, C. Brinton, L. Zheng, D. Cao. Principles for Assessing Adaptive Online Courses. *EDM*, 2018.
- C21. W. Chen, A. Lan, D. Cao, C. Brinton, M. Chiang. Behavioral Analysis at Scale: Learning Course Prerequisite Structures from Learner Clickstreams. *EDM*, 2018.
- C20. D. Cao, A. Lan, W. Chen, C. Brinton, and M. Chiang. Learner Behavioral Feature Refinement and Augmentation using GANs, *International Conference on Artificial Intelligence in Education (AIED)*, 2018.
- C19. M. Shridharan, A. Willingham, J. Spencer, T. Yang, C. Brinton. Predictive Learning Analytics for Video-Watching Behavior in MOOCs. *IEEE CISS*, 2018.
- C18. C. Bridges, J. Jared, J. Weissmann, A. Montanez-Garay, J. Spencer, C. Brinton. Course Recommendation as Graphical Analysis. *IEEE CISS*, 2018.

- C17. N. Slighton, J. Rico, E. Kallfelz, J. Qi, C. Brinton. A Network-Driven Approach to Modeling the Spread of Ebola-type Epidemics. *IEEE CISS*, 2018.
- C16. T. Yang, C. Brinton, C. Joe-Wong. Predicting Learner Interactions in Social Learning Networks. *IEEE INFOCOM*, 2018.
- C15. A. Lan, C. Brinton, T. Yang, M. Chiang. Behavior-Based Latent Variable Model for Learner Engagement. *International Conference on Educational Data Mining (EDM)*, 2017.
- C14. W. Chen, C. Brinton, D. Cao, M. Chiang. Behavior in Social Learning Networks: Early Detection for Online Short-Courses. *IEEE INFOCOM*, 2017.
- C13. L. Zheng, C. Joe-Wong, J. Chen, C. Brinton, C. Tan, M. Chiang. Economic Viability of a Virtual ISP. *IEEE INFOCOM*, 2017.
- C12. C. Brinton, S. Buccapatnam, F. Wong, M. Chiang, H. V. Poor. Social Learning Networks: Efficiency Optimization in MOOC Forums. *IEEE INFOCOM*, 2016.
- C11. C. Brinton, M. Chiang. MOOC Performance Prediction via Clickstream Data and Social Learning Networks. *IEEE International Conference on Computer Communications (INFOCOM)*, 2015.
- C10. C. Brinton, M. Chiang. Social Learning Networks: A Brief Survey. *48 Annual Conference on Information Science and Systems (CISS)*, 2014.
- C9. P. Iannone, K. Reichmann, C. Brinton, et al. Experimental Demonstration of a Cost-Effective Broadcast Overlay for a Commercial WDM PON. *National Fiber Optic Engineers Conference (NFOEC)*, 2011.
- C8. P. Iannone, K. Reichmann, C. Brinton, et al. Bi-Directionally Amplified Extended Reach 40Gb/s CWDM-TDM PON with Burst-Mode Upstream Transmission. *Optical Fiber Communication Conference (OFC)*, 2011.

#### **Peer-Reviewed WIPs, Workshops, and Other Conferences**

- C7. G. Nanda, S. Wei, A. Katz, C. Brinton, M. Ohland. Using Latent Dirichlet Allocation to uncover themes in student comments from peer evaluations of teamwork. *American Society for Engineering Education*, 2022.
- C6. T. Li, L. Castro, K. Douglas, C. Brinton. Relationship Between Learning Engagement Metrics and Learning Outcomes in Online First-Year Engineering Courses. *Frontiers in Education*, 2021.
- C5. A. Bhattacharya, E. Rutter, C. Brinton, T. Kim, and D. Diaz. Predicting in-Season Soil Mineral Nitrogen in Corn Production using Deep Learning Models. *ASA, CSSA, SSSA International Annual Meeting*, 2021.
- C4. S. Mitra, S. Bari, T. M. Talavage, C. Brinton. Generative Adversarial Networks to Model Scanner Noise for Improving Multi-Site Data Harmonization. *Organization for Human Brain Mapping*, 2020.
- C3. Y. Tu, Y. Xiong, W. Chen, C. Brinton. A Domain-Independent Text Segmentation Method for Educational Course Content. *IEEE International Conference on Data Mining (ICDM) Workshop on Data Mining for eLearning Personalization*, 2018.
- C2. C. Brinton, E. Aryafar, S. Corda, S. Russo, R. Renoso, M. Chiang. An Intelligent Satellite Multicast and Caching Overlay for CDNs to Improve Performance in Video Applications. *31st AIAA International Communications Satellite Systems Conference (ICSSC)*, 2013.
- C1. A. Katz, D. Magee, C. Brinton, and J. Qiu. Sensitivity and Mitigation of Reverse IMD in High Power Amplifiers. *2011 IEEE Topical Conference on Power Amplifiers for Wireless and Radio Applications (PAWR)*, 2011.

#### **Whitepapers**

- H4. C. Brinton, D. Love, T. Kim, M. Hashemi, A. Christianson, R. Raj. Network-Aware Distributed Machine Learning and Sensor Fusion for Spectrum System Intelligence. Sept 2020.
- H3. D. Ogbe, D. Love, C. Wang, C. Brinton. Low-Latency Techniques to Support New Scientific Missions for Beyond-5G Wireless Networks. Jan 2020.

- H2. C. Brinton, D. Love, A. Marcum, S. Mau. Distributed AI and Reception for 5G-and-Beyond Spectrum Learning. Jun 2019.
- H1. M. Chiang, C. Brinton. Individualization for Effective Learning at Massive Scale. Jul 2014.

### Major Journals and Conferences Under Review/Revision

- R9. M. Oh, S. Hosseinalipour, T. Kim, D. Love, J. Krogmeier, C. Brinton. Submitted, *IEEE Transactions on Vehicular Technologies*, Aug 2022.
- R8. E. Ruzomberka, D. Love, C. Brinton, A. Gupta, C. Wang. Challenges and Opportunities for Beyond-5G Wireless Security. Submitted, *IEEE Security and Privacy*, Jul 2022.
- R7. S. Wang, S. Hosseinalipour, M. Gorlatova, C. Brinton, M. Chiang. UAV-assisted Online Machine Learning over Multi-Tiered Networks: A Hierarchical Nested Personalized Federated Learning Approach. Under revision (since June 2022), *IEEE Transactions on Network and Service Management*.
- R6. S. Hosseinalipour, S. Wang, N. Michelusi, V. Aggarwal, C. Brinton, D. Love, M. Chiang. Parallel Successive Learning for Online Distributed Model Training over Heterogeneous Wireless Networks. Under revision (since July 2022), *IEEE/ACM Transactions on Networking*.
- R5. B. Ganguly, S. Hosseinalipour, K. Kim, C. Brinton, V. Aggarwal, D. Love, M. Chiang. Multi-Edge Server-Assisted Dynamic Federated Learning with an Optimized Floating Aggregation Point. Under revision (since June 2022), *IEEE/ACM Transactions on Networking*.
- R4. X. Zhang, Y. Li, Z. Zhang, C. Brinton. Distributional Cloning for Stabilized Imitation Learning via ADMM. Submitted, *Conference on Neural Information Processing Systems*, May 2022.
- R3. S. Zehtabi, S. Hosseinalipour, C. Brinton. Event-Triggered Decentralized Federated Learning over Resource-Constrained Edge Devices. Submitted, *IEEE Transactions on Networks and Service Management*, May 2022.
- R2. R. Sahay, S. Nicoll, M. Zhang, T. Yang, C. Joe-Wong, K. Douglas, C. Brinton. Predicting Learning Interactions in Social Learning Networks: A Deep Learning Enabled Approach. Under revision (since May 2022), *IEEE/ACM Transactions on Networking*.
- R1. S. Wang, M. Chen, C. Brinton, C. Yin, W. Saad, S. Cui. Performance Optimization for Variable Bitwidth Federated Learning in Wireless Networks. Submitted, *IEEE Journal on Selected Areas in Communications*, Apr. 2022.

### Patents

- P2. C. Brinton, M. Chiang, S. Ha, W. Ju, R. Rill, J. Walker, E. Tenorio. Systems and Methods to Assist an Instructor of a Course. *U.S. Patent #17/029,707*. Issued Aug 2022.
- P1. C. Brinton, W. Chen, M. Chiang, S. Ha, R. Rill. System and Method for Automated Course Individualization via Learning Behaviors and Natural Language Processing. *U.S. Patent #10,339,822*. Issued July 2019.

### GRANTS

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#### Current/Awarded

##### External

- PI. Defense Advanced Research Projects Agency (DARPA) Young Faculty Award (YFA) Program. “FL-NTN: Fog Learning Orchestration of Heterogeneous Model Training across Hybrid Terrestrial and Non-Terrestrial Network Systems.” Aug 2022 – Jul 2024. (\$500,000)
- PI. NSF Faculty Early Career Development Program (CAREER). “CAREER: From Federated to Fog Learning: Expanding the Frontier of Model Training in Heterogeneous Networks.” March 2022 – February 2025. (\$505,000)
- PI. Office of Naval Research Young Investigator Program (YIP). “Distributed Intelligence Optimization under Interference in Heterogeneous Resource-Constrained Wireless Systems.” April 2022 – March 2025. (\$510,000)

Purdue PI (with T. Kim [PI], M. Hashemi, J. Krogmeier, D. Love). National Science Foundation. “GOALI: CNS: Medium: Communication-Computation Co-Design for Rural Connectivity and Intelligence under Nonuniformity: Modeling, Analysis, and Implementation.” Oct. 2022 – Sept. 2025. (\$1,000,000)

PI (with D. Love, T. Kim, and M. Hashemi). Office of Naval Research. “Network-Aware Distributed Machine Learning and Sensor Fusion for Spectrum System Intelligence.” May 2021 – April 2024. (\$1,500,000)

PI (with D. Love and J. Krogmeier). Ford Motor Company. “Signal Processing and Machine Learning Approaches to Multiple Antenna Positioning for Phone as a Key (PaaK).” Apr 2021 – Mar 2023. (\$200,000)

PI (with J. Allebach). HP Personal Systems Software. “Clustering and Personalization Systems.” Jul 2021 – Dec 2022. (\$75,000)

PI (with J. Allebach). HP Personal Systems Software. “Mining and Modeling Computer Application Usage Behavior.” Aug 2021 – Dec 2022. (\$75,000)

Co-PI (with D. Love [PI]). MIT Lincoln Labs. “Machine Learning Techniques for Future Satellite Communication Networks.” Mar 2021 – Dec 2022. (\$150,000)

PI (with K. Douglas). Charles Koch Foundation. “Machine Learning for eLearning Innovation.” Aug 2020 – Dec 2022. (\$250,000)

### *Internal*

PI (with D. Love). “Streamlining and Securing AI Tensor Computations across Heterogeneous Edge Network Systems.” Autonomous and Connected Systems (ACS) initiative. Aug 2022 – July 2024. (\$75,000)

Co-PI (with A. Boltasseva [PI], J. Allebach, K. Roy, and X. Wang). “Emerging Frontiers Center: Crossroads of Quantum and AI.” Elmore Family School of ECE. Aug 2021 – July 2023. (\$500,000)

### **Recently Completed**

Purdue PI (with Raytheon BBN Technologies [lead], and Purdue co-PIs D. Love, J. Krogmeier, and C. Wang). National Spectrum Consortium (NSC). “Dynamic Spectrum Sharing 5G Network Enhancements Prototype.” Mar 2021 – May 2022. (\$8,000,000 total, \$1,500,000 to Purdue, but only Phase 1 awarded)

Purdue PI (with UNM [lead], CMU, ISU, KU, and WSU). National Science Foundation (NSF). “SII Planning: Spectrum-Agile Cognitive Communications for Terrestrial and Space Applications.” Aug 2020 – Apr 2022. (\$300,000)

Co-PI (with J. Allebach, PI). Hewlett Packard 3D Marketing. “3D Marketing Data Science.” Sept 2020 – Aug 2021. (\$65,000)

PI (with S. Bagchi). Northrop Grumman Cybersecurity Research Consortium (NGCRC). “A Privacy-Preserving Predictive Modeling Architecture for Edge Computing.” Sept 2019 – Dec 2020. (\$125,000)

PI (with D. Love, T. Kim, and M. Hashemi). Naval Surface Warfare Center Crane Division. “Distributed Machine Learning and Sensor Fusion for Spectrum Sensing System Optimization.” May 2020 – Aug 2020. (\$500,000, but only Phase 1 awarded)

### **Site Visits**

NSF Platforms for Advanced Wireless Research (PAWR). “TOWER Testbed for Open Wireless Experimental Research in Rural Communities.” Virtual site visit in May 2020.

**Total awarded amount: \$7.3M**

### INVITED PRESENTATIONS

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#### **Talks**

“From Federated to Fog Learning: Challenges and Opportunities.” Invited talk. Quantum Science Center and Elmore ECE Emerging Frontiers Center Summer School, West Lafayette, IN. May 2022.



“Intelligence Optimization over Fog Networks.” Invited talk. IEEE Summit on Communications Futures, session On the Edge and in the Cloud (virtual). Jan 2022.

“Context-Aware Distributed Learning for Heterogeneous Fog Network Systems.” Invited talk. Fog and Edge Computing Track, IEEE World Forum on Internet of Things, New Orleans, LA (virtual). Jun 2021.

“FedIoT: Network-Aware Federated Learning for Distributing AI through IoT Systems.” Tutorial. IEEE World Forum on Internet of Things, New Orleans, LA (virtual). Jun 2021.

“Migrating from Federated Learning to Fog Learning.” Invited seminar. IEEE Winter School on Fog/Edge Computing, IIT Kanpur (virtual). Dec 2020.

“Network-Aware Distributed Machine Learning for Fog/Edge Computing.” Invited seminar. Raytheon, El Segundo, CA. Oct 2019.

“Data Science Meets Network Science.” Invited seminar. Purdue Integrative Data Science Initiative, West Lafayette, IN. Sept 2019.

“Data Science Meets Network Science: Modeling and Optimizing Social Learning Networks.” Invited seminar. Purdue University, College of William and Mary, New Jersey Institute of Technology, University of Maryland, Brown University, and University of Minnesota. Spring 2019.

“A Lens into AI for Learning.” Organizer talk. Data Science for eLearning, Coursera, Mountain View, CA. Mar 2018.

“Technology and Pedagogy: Using Big Data and AI to Enhance eLearning.” Invited lecture. DEGREE meeting. Chegg, San Francisco, CA. Dec 2017.

“Learning Analytics and Personalization: A Behavior-Based Approach.” Organizer talk. 2017 KDD Workshop on Advancing Education with Data, Halifax, Canada. Aug 2017.

“The Power of Networks: What Facebook, Cell Phones, and Online Courses Have in Common.” Engineering Week Keynote Lecture, The College of New Jersey, Ewing, NJ. Feb 2017.

“Beyond Assessment Scores: How Behavior Can Give Insight into Knowledge Transfer.” Invited talk. NIPS Workshop on Machine Learning for Education, Barcelona, Spain. Dec 2016.

“The Next Generation of Learning Technologies.” Invited talk. Trenton Computer Festival, Ewing, NJ. Mar 2016.

“Pedagogy and Technology: Leveraging Big Data to Enhance the Quality of Human Learning.” Invited talk. Bell Labs, Murray Hill, NJ. Nov 2015.

“Improving the Quality of Massively Scaled (Human) Learning Through Machine Learning.” Invited Seminar. Department of Computer and Information Sciences, University of Delaware, Newark, DE. May 2015.

“Social Learning Networks: Enhancing the Engagement and Efficacy of Learning.” Invited talk. Applied Communication Sciences, Basking Ridge, NJ. Apr 2015.

## Panelist

“5G Security.” 21st CERIAS Annual Security Symposium, Purdue University, West Lafayette, IN. Sept 2020.

“Utilizing Data Science as a Strategy.” Data Science for eLearning, Udemy, San Francisco, CA. Apr 2017.

“Education Innovation Panel: Pedagogy and Technology.” Keller Center 10th Anniversary Symposium, Princeton University, Princeton, NJ. Oct 2015.

“Massive Open Online Courses: Reflections, Challenges, and Opportunities.” 65th Annual United Nations DPI / NGO Conference (Program: Recovering Stolen Childhoods Through Education: Utilizing the Tools of the Digital Age), New York City, NY. Aug 2014.

“Online Courses: Issues and Opportunities.” The MOOC Experience: Faculty Reflections, William Patterson University, Wayne, NJ. Oct 2013.

“Practical Issues Dealing with Online Courses / Flipped Courses.” The Role of Technology in Postsecondary Education, Princeton University, Princeton, NJ. May 2013.

### Webinars and Podcasts

“Revolutionizing an Industry.” Podcast. American Mathematical Society, Mathematical Moments Episode 139, Sept 2018.

“New Perspectives on Improving Business Outcomes through Better Measurement and Online Learning Design.” Webinar. Cognizant, Teaneck, NJ. Jun 2018.

“The Power of Networks.” Podcast. Smart People Podcast, Episode 268, Apr 2017.

### TEACHING EXPERIENCE

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#### **ECE 301: Signals and Systems** (Purdue, Instructor) *F'22*

This course teaches mathematical tools to analyze and manipulate both signals that carry information as well as systems that respond to signals and produce outputs.

- Typical enrollment: 400 students
- Responsibilities: Creating/delivering lectures, creating exams and assignments, mentoring final projects, grading, and holding office hours.

#### **ECE 60022: Wireless Communication Networks** (Purdue, Instructor) *S'22*

This course covers fundamental techniques in wireless networks, such as channel modeling, cellular design, resource allocation, and edge intelligence. It also introduces the engineering challenges to be considered in NextG systems.

- Typical enrollment: 25 students
- Responsibilities: Overall course organization, creating/delivering lectures, creating exams and assignments, mentoring final projects, managing TAs, and holding office hours.

#### **ECE 20875: Python for Data Science** (Purdue, Instructor and co-developer) *F'19, S'20, F'20, F'21*

This course introduces Python programming to students through data science problems. Students learn Python concepts as well as introductory data science topics such as regression, clustering, and neural networks.

- Typical enrollment: 300 students
- Responsibilities: Overall course organization, creating/delivering lectures, creating exams and assignments, mentoring final projects, managing TAs, and holding office hours.

#### **EPICS: Harnessing the Data Revolution** (Purdue, Instructor and co-developer) *F'21, S'22, F'22*

Engineering Projects in Community Service (EPICS) is a service-learning design program in which teams of students partner with local and global community organizations to address human, community, and environmental needs.

- Typical enrollment: 15 students
- Responsibilities: Mentoring student project teams, critiquing design reviews, facilitating interactions with community partners, and managing TAs.

#### **ELE/APC 486: Transmission and Compression of Information** (Princeton, Lecturer) *S'19*

This course covers the fundamental algorithms and limits of data compression and transmission, detailing key components of information theory and coding theory. It is an elective for students in EE and math.

- Typical enrollment: 10 students
- Responsibilities: Creating/delivering lectures, creating and grading exams, creating and grading problem sets, and holding office hours.

#### **ELE/COS 381: Networks: Friends, Money, and Bytes** (Princeton, Lecturer) *F'17, S'19*

This course teaches social, economic, and technical networks with data science, optimization, linear algebra, and machine learning. It is interdisciplinary, taken by students in EE, CS, ORFE, economics, and other majors.

- Typical enrollment: 80 students

- Responsibilities: Creating/delivering lectures, creating exams, mentoring final projects, managing TAs, holding office hours.

**ELE 206 / COS 306: Contemporary Logic Design** (Princeton, Lecturer) *F'18*

This course teaches the basic concepts in logic design that form the basis of computation and communication circuits, such as logic gates, memory elements, and finite state systems. It is a core class for EE and an elective for COS.

- Enrollment: 105 students
- Responsibilities: Creating/delivering/recording lectures, organizing labs, managing TAs, holding office hours.

**ENG 150: Foundations of Engineering** (Princeton, Lecturer) *S'18*

This course provides a hands-on introduction to the foundational principles of engineering, including calculus, physics, circuit construction, and computational data analysis. It is for incoming Princeton students prior to freshman year.

- Enrollment: 18 students
- Responsibilities: Creating/delivering lectures, running labs, managing TAs, holding office hours.

**ELE 201: Information Signals** (Princeton, Lecturer) *S'18*

This course teaches mathematical tools to analyze and manipulate both signals that carry information as well as systems that respond to signals and produce outputs. It is a core class for EE and also taken by COS and math.

- Enrollment: 37 students.
- Responsibilities: Creating/delivering lectures, creating exams, managing TAs, holding office hours.

**ENG 342: Advanced Engineering Math II** (TCNJ, Adjunct Professor) *F'16, S'17*

This course covers a range of topics in probability/statistics, machine learning, and partial differential equations. It is taken by juniors and seniors in electrical, computer, mechanical, and biomedical engineering.

- Typical enrollment: 30 students.
- Responsibilities: Lecturing, creating/delivering exams and homeworks, grading, holding office hours.

**Fog Networks and the Internet of Things** (MOOC, Instructor) *F'17 - S'19*

This course covers Fog networking, the key trend of pushing computation, storage, and communication tasks from the cloud towards the network edge. In doing so, it discusses the Internet of Things, a key network enabled by Fog.

- Enrollment: 20,000 students since 2015.
- Responsibilities: Creating lecture videos, responding to forum questions, offering virtual office hours.

**Networks Illustrated: Principles Without Calculus** (MOOC, Instructor) *S'13 - S'19*

This Massive Open Online Course (MOOC) explains the fundamental principles behind social, economic, and technical networks. It is based on my textbook *The Power of Networks: Six Principles That Connect our Lives*.

- Enrollment: 150,000 students since 2013.
- Responsibilities: Creating lecture videos, responding to forum questions, making homeworks/exams.

**Networks: Friends, Money, and Bytes** (MOOC, Instructor) *F'12 - S'19*

This is the online version of Networks: Friends, Money, and Bytes. It was among the first six MOOCs by Princeton.

- Enrollment: 250,000 students since 2012.
- Responsibilities: Responding to forum questions, making homeworks/exams, offering virtual office hours.

**ELE 381: Networks: Friends, Money, and Bytes** (Princeton, lead TA) *F'12*

This is the course I am a lecturer for now. It was the first-ever offering of a STEM course in “flipped classroom” format at Princeton, where lecture videos were watched before class and class time was used for discussion.

- Enrollment: 30 students.

- Responsibilities: Managing Q&A sessions, setting up real-time demonstrations during class, making/grading homeworks/exams, mentoring final course projects.

## MENTORING EXPERIENCE

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### Postdoctoral Researchers (current)

Dinh Nguyen: Spring 2022 – Present  
Anindya Das: Summer 2022 – Present  
Rohit Parasnis: Summer 2022 – Present

### PhD Students (current)

Sheik Shams Azam: Fall 2019 – Present  
Junghoon Kim: Fall 2019 – Present  
Frank Lin: Fall 2019 – Present  
Henry Wang: Fall 2019 – Present  
Rajeev Sahay: Spring 2020 – Present  
Myeung Suk Oh: Spring 2020 – Present  
Yun-Wei Chu: Spring 2021 – Present  
Zhan-Lun Chang: Fall 2021 – Present  
Shahryar Zhetabi: Fall 2021 – Present  
Satyavrat Wagle: Spring 2022 – Present  
Evan Chen: Fall 2022 – Present

### Undergraduate Research Students (current)

Minjun (Jess) Zhang: Summer 2020 – Present  
David Nickel: Spring 2021 – Present  
Leyla Ciner: Summer 2021 – Present

### Postdoctoral Researchers (completed)

Seyyedali Hosseinalipour (Summer 2020 – Summer 2022): Now Assistant Professor of Electrical Engineering, University at Buffalo

### Masters Students (completed)

Serena Nicoll (Fall 2020 – Spring 2022, *Applied Machine Learning for Online Education*): Now at STR: Systems & Technology Research  
Rajeev Sahay, Purdue (Spring 2020 – Spring 2021, *Mitigating Adversarial Interference in Deep Learning-based Wireless Signal Classification Receivers*): Now PhD candidate at Purdue  
Somosmita Mitra, Purdue (Fall 2019 – Spring 2021, *Brain Tumor Detection via Generative Adversarial Network Models of MRI Scans*): Now a PhD student at Purdue  
Tsung-Yen Yang, Princeton (Fall 2016 – Spring 2019, *Learning Informative and Private Representations via Generative Adversarial Networks*): Now PhD candidate at Princeton

Jessica Ko, Princeton (Fall 2015 – Spring 2017): *MOOC User Behavior Analysis: Insight from Topic Analysis and Application to Performance Prediction*

#### **Undergraduate Research Students (completed)**

Siddharth Srinivasan, Purdue (Spring 2021 – Fall 2021)

Mahd Khan, Princeton (Fall 2018 – Spring 2019): *Deep Learning for Improvement of Autonomous Vehicle Navigation*

Madhumitha Shridharan, Princeton (Summer 2018 – Spring 2019): *Assessing the Efficacy of Deep Learning for MOOC Behavior-based Prediction*

Caeley Harihara, Princeton (Summer 2018 – Spring 2019): *Data Mining and Feature Engineering of MOOC Clickstreams for Predictive Learning Analytics*

Ankit Buddhiraju, Princeton (Fall 2014 – Spring 2015): *Dynamic Centrality Measures for Financial Contagion: New Paradigms for Modeling Dynamic Graphs across Disciplines*

Pranav Ghokale, Princeton (Fall 2014 – Spring 2015): *TypeAway: Development of a Gesture-Based Typing System*

Vaidhy Murthi, Princeton (Fall 2014 – Spring 2015): *Mod-omate: Automated Moderation on Anonymous Social Media Apps*

George Touloumes, Princeton (Fall 2013 – Spring 2014): *Visualizing Instructor Feedback for Video-Based Online Courses*

Ankit Buddhiraju, Princeton (Fall 2013 – Spring 2014): *Mercury Model: A Unified Approach to Studying Dynamic Networks*

Jian Min Sim, Princeton (Fall 2012 – Spring 2013): *Investigation of Information Propagation in Social Search*

Harvest Zhang, Princeton (Fall 2012 – Spring 2013): *Profiling and Visualizing Student Performance in MOOCs*

Ethan Berl (Feb 2013 – May 2013), Princeton: *Algorithms for Recommending Sequences of Courses for College Students*

Rohan Sharma, Princeton (Fall 2012 – Spring 2013): *Evaluating Amazon's Ranking Algorithm*

#### **Industry Researchers (from Zoomi Inc.)**

Adam Hare (Dec 2019 – Present): Data Scientist/Researcher/Full-Stack Developer

Elizabeth Tenorio (Jan 2018 – Jan 2021): Lead Data Scientist

Yuwei Tu (Apr 2018 – Spring 2020): Data Scientist

Amanda Mason-Singh (Feb 2017 – May 2018): Lead Data Scientist

Joseph Urciuoli (Sept 2016 – Nov 2017): Lead Data Engineer

Weiyu Chen (Jul 2015 – Nov 2018): Lead Data Scientist

Da Cao (Mar 2015 – Oct 2019): Data Engineer

Ying Xiong, Patrick Hansen, Richard Junior Bustamante (Jun 2018 – Aug 2018): Undergraduate Interns

Charlton Lu (Jun 2016 - Aug 2016, Jun 2017 – Aug 2017): High School Intern

Advait Chauhan, Derrick Xin, Sean Yun (Jun 2015 – Aug 2015): Undergraduate Interns

#### **PhD Committee Membership or Examiner**

Miguel Villarreal-Vasquez, Purdue Computer Science (Defended June 2020); Ganapathy Mani, Purdue Computer Science (Defended April 2020); Laura Cruz, Purdue Engineering Education (Defended June 2022)

**Journal Editorial Boards**

Associate Editor, *IEEE Transactions on Wireless Communications* 2021 - present

**Conference Workshop/Session Organizer**

*Workshop on Data Driven Networking (DDN)*. ACM MOBIHOC, July 2021.

*Fog/Edge Computing and Networking for 5G and Beyond IoT*. World Forum on Internet of Things, June 2021.

*Workshop on Distributed Machine Learning and Fog Networks*. IEEE INFOCOM, Apr 2021.

*Foundations and Applications of Data Science*. IEEE CISS Session, Mar 2020.

*Workshop on Data Mining for eLearning Personalization*. IEEE ICDM, Nov 2018.

*Workshop on Advancing Education with Data*. ACM SIGKDD, Aug 2017.

**Conference Technical Program Committees**

*IEEE Conference on Computer Communications (INFOCOM)* 2019 - present

*IEEE International Conference on Distributed Computing Systems (ICDCS)* 2021 - present

*AAAI Conference on Artificial Intelligence* 2021 - present

*IEEE Conference on Information Sciences and Systems (CISS)* 2018 - present

*IEEE Vehicular Technology Conference* 2020

*IEEE Sarnoff Symposium* 2020

**Mentoring Faculty Fellow**, Purdue University's Graduate School 2022

**Committee Member**, Purdue University

*Purdue ECE's Foundations of Data Science Faculty Search Committee* 2019 - 2020

*Purdue ECE's Graduate Committee* 2019 - Present

**Faculty Advisor**, Purdue University

*IEEE Student Organization* 2019 - Present

*ECE Graduate Student Association* 2019 - Present

**Peer Reviewer**

*IEEE/ACM Transactions on Networking* 2016 - Present

*IEEE INFOCOM* 2017 - Present

*IEEE Transactions on Wireless Communications* 2020 - Present

*NeurIPS* 2018, 2019

*IEEE ICDM* 2018, 2019

*Entropy* 2019

*ACM SIGKDD* 2017, 2018

*IEEE Transactions on Learning Technologies* 2014 - 2017

*IEEE Transactions on Emerging Topics in Computing* 2015 - 2017

*Elsevier Computers & Education* 2015 - 2017

## Proposal Review Panelist

<i>NSF Computer and Network Systems (CNS)</i>	2020, 2022
<b>Alumni Interviewer</b> , Princeton University	2016 - 2018
<b>Chief Coordinator and Co-Founder</b> , 3 Nights and Done (3ND)	2012 - 2015
<b>Alumni Mentor</b> , TCNJ School of Engineering	2012 - 2014
<b>President and Co-Founder</b> , TCNJ Engineering Honor Society (now Tau Beta Pi)	2010 - 2011
<b>Vice President</b> , TCNJ IEEE Student Organization	2009 - 2010

## AWARDS AND HONORS

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*Defense Advanced Research Projects Agency (DARPA) Young Faculty Award (2022)*: Recipient of the 2022 DARPA Young Faculty Award (YFA) program.

*National Science Foundation (NSF) Faculty Early Career Development Program (CAREER) Award (2022)*: Recipient of a 2022 NSF CAREER award.

*Office of Naval Research (ONR) Young Investigator Award (2022)*: Recipient of the 2022 ONR Young Investigator Program (YIP).

*College of Engineering Faculty Excellence Award for Online Education (2022)*: Awarded to one faculty member in Purdue's College of Engineering each year.

*Distinguished Member of the INFOCOM TPC (2022, 2021, 2019)*: Awarded based on contribution to the peer-review process of IEEE INFOCOM.

*2020 Ruth and Joel Spira Outstanding Teacher Award (2020)*: Awarded to one faculty member in Purdue ECE each year.

*Purdue Outstanding Faculty Mentor of Engineering Graduate Students (2020)*: Awarded to one faculty member in each Purdue Engineering school each year.

*Purdue Seed for Success Award (2019)*: Awarded for efforts in obtaining an external sponsored research award of \$1 million or more.

*Princeton Engineering Commendation List for Outstanding Teaching (2019)*: Awarded for high teaching evaluations received during the spring 2019 semester.

*INFOCOM Best-in-Session Presentation Award (2018, 2016)*: Awarded for having the highest rated presentation in my corresponding sessions at INFOCOM 2016 and 2018.

*Bede Liu Best Dissertation Award in Electrical Engineering (2016)*: Awarded to one graduating PhD student in Princeton's EE Department each year.

*Yan Huo '94 Graduate Fellowship in Electrical Engineering (2015)*: Awarded to three graduate students in Princeton's EE Department each year.

*Outstanding Teaching Assistant Award (2013)*: Awarded after being an assistant instructor for ELE/COS 381, both at Princeton (in-class) and on Coursera (online).

*Princeton University Research Assistantship (2012 - 2016)*: Awarded full tuition and stipend by Princeton for my PhD research.

*Princeton University First Year Fellowship* (2011 - 2012): Awarded full tuition and additional compensation for my first year of graduate studies at Princeton.

*TCNJ School of Engineering Banner Bearer* (2011): Awarded at graduation for obtaining the highest GPA of all graduating engineers from TCNJ in 2011.

*Engineer in Training* (2011): Awarded for passing the Fundamentals of Engineering (FE) exam in 2011.

*TCNJ Fred O. Armstrong Scholars Award in Electrical Engineering* (2008 - 2011): Obtained the highest-in-class GPA of Electrical Engineers. Received each year during my undergraduate studies.

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#### PROFESSIONAL AND HONORARY SOCIETY AFFILIATIONS

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##### **IEEE**

Senior Member *2020 - Present*

Member *2016 - 2020*

Student Member *2008 - 2016*

**Tau Beta Pi** (NJ Zeta) Engineering Honor Society *2013 - Present*

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#### UNDERGRADUATE RESEARCH POSITIONS

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*AT&T Labs*, Optical Systems Research Group, Middletown, NJ *Jun 2010 - Aug 2010*

*Linearizer Technology*, RF Research Group, Hamilton, NJ *May 2009 - Dec 2009*

*AT&T*, Transport Field Technical Support, Bedminster, NJ *Jun 2008 - Aug 2008*

**Last updated:** September 15, 2022