Sattar Vakili

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Current position

Mar 2018 - **Senior Machine Learning Researcher**, Prowler.io, Cambridge, UK.

As a senior machine learning researcher at Prowler.io, I work on developing multi-agent decision-making systems and the applications of online learning in financial trading.

Experience

Aug 2017 - Mar 2018 **Postdoctoral Researcher, Electrical Engineering Department, Princeton University, Princeton, NJ.**

As a postdoctoral research associate at Princeton University, I worked on distributed optimization and learning on networks, and distributed and real time machine learning over limited and heterogeneous computational nodes.

Education

2017 **PhD in Electrical and Computer Engineering, Cornell University, Ithaca, NY.**

My PhD focused on Sequential Inference and Decision Making, Online Learning and Multi Armed Bandit problems. Motivated by emerging applications such as online ad placement and web search, and social and economic networks, as well as recent engineering applications such as detection of heavy hitters and denial-of-service attacks in the Internet, and communication and computer networks and short-term instability detection from PMU measurements in power systems, I have worked on time-varying models, risk-averse measures, hierarchical observations, and non-parametric composite hypotheses.

2013 **Master in Electrical and Computer Engineering, University of California, Davis, CA.**

My Master thesis focused on Online Learning in dynamic environments under unknown models.

2011 **Bachelor in Electrical Engineering, Sharif University of Technology, Tehran, Iran.**

Areas of specialization

- Online Learning and Multi-Armed Bandit Theory
- Sequential Inference and Decision Making
- Stochastic Optimization
- Distributed Machine Learning on Networks
- Game Theory and Strategic Learning

Publications

2016 S. Vakili, Q. Zhao, "Risk-Averse Multi-Armed Bandit Problems under Mean-Variance Measure," Journal of Selected Topics in Signal Processing: Special Issue on Financial Signal Processing and Machine Learning for Electronic Trading, vol. 10, no. 6, pp. 1093-1111, September, 2016.

2013 S. Vakili, K. Liu, Q. Zhao, "Deterministic Sequencing of Exploration and Exploitation for Multi-Armed Bandit Problems," Journal of Selected Topics in Signal Processing, vol. 7, no. 5, pp. 759-767, October, 2013.

2018 S. Vakili, Q. Zhao, "Acive Learning on a Tree," invited paper at the 56th Annual Allerton Conference on Communication, Control, and Computing, October, 2018, Urbana, IL, USA.

2018 S. Vakili, Q. Zhao, C. Liu, C.-N. Chuah, "Hierarchical Heavy Hitter Detection under Unknown Models," invited paper at the 2018 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), April, 2018, Calgary, Alberta, Canada.

2017 S. Vakili, Q. Zhao, C. Liu, C.-N. Chuah "Anomaly Detection in Hierarchical Data Streams under Unknown Models," in queue for submission, available at https://arxiv.org/abs/1709.03573.

2017 X. Xu, S. Vakili, Q. Zhao, A. Swami, "Online Learning with Side Information," the 36th IEEE Military Communication Conference (MILCOM), October, 2017, Baltimore, MD, USA.

2015 S. Vakili, Q. Zhao, "Mean Variance and Value at Risk in Multi-Armed Bandit Problems," in Proc. of the 53nd Annual Allerton Conference on Communication, Control, and Computing, October, 2015, Allerton, IL, USA.

2015 S. Vakili, Q. Zhao, L. Tong, "Bayesian Quickest Short-term Voltage Instability Detection in Power Systems," in Proc. of the 54th IEEE Conference on Decision and Control (CDC), December, 2015, Osaka, Japan.

2015 S. Vakili, Q. Zhao, "Risk-Averse Online Learning under Mean-Variance Measures," in Proc. of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), April, 2015, South Brisbane, Queensland, Australia.

2015 S. Vakili, Q. Zhao, L. Tong, "Quickest Detection of Short-Term Voltage Instability with PMU Measurements," in Proc. of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), April, 2015, South Brisbane, Queensland, Australia.

2014 S. Vakili, Q. Zhao, Y. Zhou, "Time-Varying Stochastic Multi-Armed Bandit," in Proc. of the 48th IEEE Asilomar Conference on Signals, Systems, and Computers, November, 2014, Pacific Grove, CA, USA.

2013 S. Vakili, Q. Zhao, "Achieving Complete Learning in Multi-Armed Bandit Problems,"in Proc. of the 47th IEEE Asilomar Conference on Signals, Systems, and Computers, November, 2013, Pacific Grove, CA, USA.

2013 S. Vakili, Q. Zhao, "Distributed Node-Weighted Connected Dominating Set Problems," in Proc. of the 47th IEEE Asilomar Conference on Signals, Systems, and Computers, November, 2013, Pacific Grove, CA, USA.

Teaching Experience

2016 Signals and Information, ECE2200 at Cornell University, Instructor: Professor Peter Doerschuk

2012 Introduction to Signals and Systems I, EEC150A at UC Davis, Instructor: Professor Qing Zhao

2010 Communication Systems, Sharif University, Instructor: Professor Fereidoon Behnia

Honors

2018 Invited to 56th Annual Allerton Conference on Communication, Control, and Computing, IL, USA.

2018 Member of the technical program committee of the IEEE Journal on Selected Areas in Communications, Special Issue on Ultra-Reliable Low-Latency Communications in Wireless Networks.

2018 Invited to INFORMS Annual Meeting, Phoenix, AZ, USA.

2018 Endorsed as an exceptional talent in machine learning and data science by the UK Secretary of State, UK.

2018 Invited to IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Calgary, Alberta, Canada.

2018 Member of the technical program committee of the 52nd Annual Conference on Information Sciences and Systems (CISS), Princeton University, Princeton, NJ.

2015 2015-16 academic year graduate student fellowship, school of electrical and computer engineering, Cornell University, Ithaca, NY.

2011 The top scorer of oral PhD preliminary exam in signal and systems area (8/8), electrical and computer engineering department, University of California, Davis.

2011 Fall 2011 graduate student fellowship, electrical and computer engineering department, University of California, Davis.

2007 Ranked the **23rd** among more than 350,000 participants in national university entrance exam, Iran.

Reviewer of the papers submitted to:

2018 European Journal of Operational Research

2018 IEEE Journal on Selected Areas in Communications, Special Issue on Ultra-Reliable Low-Latency Communications in Wireless Networks

2017 Annual Conference on Information Science and Systems (CISS)

2017 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)

2017 American Control Conference (ACC)

2017 IEEE Transactions on Signal Processing

2017 IEEE International Symposium on Information Theory (ISIT)

2016 IEEE Transactions on Signal Processing

2015 IEEE Transactions on Cognitive Communications and Networking

2015 IEEE Transactions on Wireless Communications

2014 IEEE Journal on Selected Areas in Communications

2014 IEEE International Conference on Communications in China (ICCC)

2014 IEEE Military Communication Conference (MILCOM)