Ehsan Hajiramezanali

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Education

2015-present **PhD Candidate**, *Texas A&M University*, College Station, TX.
Electrical Engineering

2013-2015 **PhD Candidate**, *Amirkabir University of Technology*, Tehran, Iran.
Electrical Engineering - Communication Systems

2009–2012 **Master of Science**, *Amirkabir University of Technology*, Tehran, Iran.
Electrical Engineering - Communication Systems

2005–2009 **Bachelor of Science**, *K. N. Toosi University of Technology*, Tehran, Iran.
Electrical Engineering - Communication

Research Interests

○ Machine learning, Bayesian methods, Deep learning, Data integration, Time series analysis
○ Bioinformatics, Genomic signal processing, Drug repositioning, Longitudinal data analysis
○ Graph representation learning, Graph signal processing, Dynamic networks

Publications

Conference Papers

○ **E. Hajiramezanali**, A. Hasanzadeh, N. Duffield, K. Narayanan, and X. Qian, "BayReL: Bayesian Relational Learning for Multi-omics Data Integration", submitted to ***Neural Information Processing Systems (NeurIPS2020)***.

○ A. Hasanzadeh*, **E. Hajiramezanali***, S. Boluki, M. Zhou, N. Duffield, K. Narayanan, and X. Qian, "Bayesian Graph Neural Networks with Adaptive Connection Sampling", ***International Conference on Machine Learning (ICML 2020)***. (*Equal contribution by the first two authors)

○ **E. Hajiramezanali***, A. Hasanzadeh*, N. Duffield, K. Narayanan, M. Zhou, and X. Qian, "Semi-Implicit Stochastic Recurrent Neural Networks", ***ICASSP 2020 - 2020 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)***, Barcelona, Spain, May 2020, *[Oral Presentation]*. (*Equal contribution by the first two authors)

○ **E. Hajiramezanali***, A. Hasanzadeh*, N. Duffield, K. Narayanan, M. Zhou, and X. Qian, "Variational Graph Recurrent Neural Networks", ***Neural Information Processing Systems (NeurIPS2019)***, Vancouver, Canada, Dec. 2018. (*Equal contribution by the first two authors)

- A. Hasanzadeh*, **E. Hajiramezanali***, N. Duffield, K. Narayanan, M. Zhou, and X. Qian, "Semi-Implicit Graph Variational Auto-Encoders", ***Neural Information Processing Systems (NeurIPS2019)***, Vancouver, Canada, Dec. 2018. (*Equal contribution by the first two authors)
- **E. Hajiramezanali**, S. Z. Dadaneh, A. Karbalayghareh, M. Zhou, and X. Qian, "Bayesian Multi-Domain Learning for Cancer Subtype Discovery from Next-Generation Sequencing Count Data", ***Neural Information Processing Systems (NeurIPS2018)***, Montreal, Canada, Dec. 2018.
- **E. Hajiramezanali**, M. Imani, U. Braga-Neto, X. Qian, and E. Dougherty, "Scalable Optimal Bayesian Classification of Single-Cell Trajectories under Regulatory Model Uncertainty", Proceedings of the 2018 ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics, ***ACM 2018***, Washington, DC.
- **E. Hajiramezanali**, K. He, P. Figueiredo, S. Sze, X. Qian, "Impact of RNA-seq Read Alignment on Differential Alternative Splicing Detection," ***MCBIOS 2017***, AR, USA.
- **M. Hajiramezanali**, H. Amindavar, "Maneuvering Target Tracking based on Combined Stochastic Differential Equations and GARCH process," IEEE International Conference on Information Science, Signal Processing and their applications, ***ISSPA 2012***, Montreal, Canada.
- **M. Hajiramezanali**, H. Amindavar, "Maneuvering Target Tracking based on SDE Driven by GARCH Volatility", IEEE International Workshop on Statistical Signal Processing, ***SSP 2012***, Ann Arbor, Michigan, USA.

Journal Papers
- **E. Hajiramezanali**, S. Z. Dadaneh, P. Figueiredo, S. Sze, M. Zhou, and X. Qian, "Differential Expression Analysis of Dynamical Sequencing Count Data with a Gamma Markov Chain," submitted to ***Bioinformatics***.
- **E. Hajiramezanali**, M. Imani, U. Braga-Neto, X. Qian, and E. Dougherty, "Scalable Optimal Bayesian Classification of Single-Cell Trajectories under Regulatory Model Uncertainty", ***BMC Genomics***.
- Z. Li, P. Zhang, A. Yan, Z. Guo, Y. Ban, J. Li, S. Chen, H. Yang, Y. He, J. Li, S. Chen, H. Yang, Y. He, J. Li, Y. Guo, W. Zhang, **E. Hajiramezanali**, H. An, D. Fajardo, J. W. Harbour, Y. Ruan, S. D. Nimer, P. Yu, X. Chen, M. Xu, F. Yang, "ASXL1 interacts with the cohesin complex to maintain chromatid separation and gene expression for normal hematopoiesis", ***Science Advances***, Volume 3, Number 1, 2017.
- **E. Hajiramezanali**, S. H. Fouladi, J. A. Ritcey, and H. Amindavar, "Stochastic Differential Equations for Modeling of High Maneuvering Target Tracking", ***ETRI Journal***, Volume 35, Number 5, October 2013.
- S.H. Fouladi, **E. Hajiramezanali**, H. Amindavar, J. A. Ritcey, and P. Arabshahi, "Denoising Based on Multivariate Stochastic Volatility Modeling of Multiwavelet Coefficients," ***IEEE Transactions on Signal Processing***, Volume 61, Number 22, November 2013.

Book ○ A. Bal, Y. Chen, Z. Chen, A. Dinavahi, **E. Hajiramezanali**, E. Kaya, S. Moosavi, and P. Wallace, "ESET 211 AC Circuits - Lab Manual", ***Industrial Distribution Program***, Texas A&M University, January 2018.

Talks and Presentations

2019   Graph Representation Learning, ***Winedale Workshop***, TX, USA.

2019   Hiearachical Bayesian Modeling for Cancer Subtype Discovery, ***Texas Tech University***, TX, USA.

2018   Bayesian Multi-Domain Learning, ***Winedale Workshop***, TX, USA.

2017   Impact of RNA-seq Read Alignment on Differential Alternative Splicing Detection, ***MCBIOS***, AR, USA.

Research Experience

2016–Present   **Research Assistance**, *Genomic Signal Processing Laboratory*, Texas A&M University.
- Research on graph analytics including graph representation learning, graph neural networks, and relational inference.
- Research on Bayesian machine learning including parametric and nonparametric modeling, Bayesian neural networks, (implicit) variational inference, MCMC, and optimal Bayesian classification.
- Research on transfer learning and multi-omic data integration.
- Research on computational biology including analysis of gene expression, alternative splicing, single-cell RNA-seq, lncRNA , and nanopore sequence.
- Research on Bayesian learning with heterogeneity.
- Research on autoregressive models including (extended) Kalman filters, Particle filters, variational RNN, and Gamma Markov models.

2015–2016   **Research Assistance**, *Yu Bioinformatics Lab*, Texas A&M University.
- Research on multiclass classification approach based on gene regulatory networks.
- Research on miRNA-lncRNA interactions and miRNA differential gene expression.
- Research on sgRNA in the context of miRNA and CRISPR applications.
- Research on drug repositioning.

2009–2015   **Research Assistance**, *Digital Communication Research Laboratory*, Amirkabir University of Technology.
- Research on statistical signal processing, including non-linear non-stationary heteroscedasticity processes, estimation and detection, speech recognition, hidden Markov models, and wavelet transformation.

Teaching Experiences

2017–2020   **Teaching Assistance**, *Texas A&M University*, TX, USA.
- Power Systems and Circuit Applications
- Analog Electronics

2013-2015   **Teaching Assistant**, *Amirkabir University of Technology*, Iran.
- Digital Signal Detection and Estimation
- Digital Signal Processing
- Advanced Digital Communication

2011–2013	**Lecturer**, *Taali Institute of Higher Education*, Department of ICT, Iran.

- Probability and Statistics
- Digital Communication
- Analogue Communication
- Satellite Communication

Awards and Professional Services

2020	Finalist nominee for the **ICASSP 2020 Best Student Paper Award**.
2020	Reviewer for **NeurIPS** and **ICML**.
2020-present	Reviewer for **PLOS ONE** journal.
2020	Finalist nominee of Texas A&M University for the **2020 Google AI Fellowship**.
2019	Finalist nominee for the **Outstanding Graduate Student Award**, Texas A&M University.
2019	**Outstanding Graduate Student Award** from the Department of Electrical and Computer Engineering, Texas A&M University.
2019-present	Reviewer of **IEEE/ACM Transactions on Computational Biology and Bioinformatics** and **IEEE Intelligent Systems** journals.
2019	Top 50% **highest-scoring reviewers** of NeurIPS conference.
2019	Reviewer for **NeurIPS**, **AAAI**, and **EMBC**.
2019	**Travel Grant Award** at Scientific Computing meets Machine Learning and Life Sciences, Lubbock, TX, USA.
2018	**NSF Travel Grant Award** at International Workshop on Computational Network Biology: Modeling, Analysis, and Control, Washington, DC, USA.
2017	**Travel Grant Award** at MCBIOS 2017, Little Rock, AR, USA.
2017	Reviewer for **BHI2017**.
2013-2015	Member of **Iranian National Elites Foundation**, Tehran, Iran.
2013-2015	**IET Journals Reviewer**, including IET Control, Theory & Applications and IET Radar, Sonar & Navigation.

Collaborators

My research opened collaboration with several schools listed below:

- UT Austin (Dr. Mingyuan Zhou), TAMU (Prof. Edward Dougherty, Prof. Ulisses Braga Neto, Prof. Krishna Narayanan, Prof. Nick Duffield, Dr. Paul de Figueiredo, and Dr. Sing-Hoi Sze), UW (Prof. James A Ritcey, and Dr. Payman Arabshahi), Uhealth (Dr. Feng-Chun Yang), GW (Dr. Mahdi Imani), NTNU (Dr. Hamed Fouladi).