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, K. Narayanan, N. Duffield, M. Zhou, and X. Qian, "Semi-Implicit Stochastic Recurrent Neural Networks", submitted to ***ICASSP 2020***.
- **E. Hajiramezanali**, A. Hasanzadeh, K. Narayanan, N. Duffield, M. Zhou, and X. Qian, "Variational Graph Recurrent Neural Networks", ***Neural Information Processing Systems (NeurIPS2019)***, Vancouver, Canada, Dec. 2018.
- A. Hasanzadeh*, **E. Hajiramezanali***, K. Narayanan, N. Duffield, 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. Q, 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 ***The Annals of Applied Statistics***.
- **E. Hajiramezanali**, M. Imani, U. Braga-Neto, X. Q, 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 representation learning in context of link prediction.
- Research on implicit variational inference and its application on the biological graphs.
- Research on transfer learning and data integration based on the multi-omic data.
- Research on Parametric and Nonparametric Bayesian modeling and its application on life study.
- Identifying differential expression profiles of time-course gene data based on Gamma Markov Chain.
- Providing an differential alternative splicing pipeline based on rMATS and DEXSeq.
- Research on differentially expression analysis of single-cell RNA sequences and long noncoding RNAs.

2015–2016 **Research Assistance**, *Yu Bioinformatics Lab*, Texas A&M University.

- Designed a new multiclass classification approach based on gene regulatory networks in cell engineering application. A new R package has been developed.
- Developed a new miRNA-lncRNA targeting pipeline.
- Developed pipeline for miRNA differential gene expression based on STAR.
- Developed a pipeline for extracting sgRNA in the context of miRNA and CRISPR applications.
- Developed an R package for drug repositioning.
- Research on extract and analysis of TCGA data based on bamslicer.
- Developed a pipeline for RNAseq alignment based on STAR and bowtie.
- Developed a gene regulatory network inference based on conditional mutual information to extract modulators.

2009–2015 **Communication Engineer**, *Digital Communication Research Laboratory*, Amirkabir University of Technology.

- Research on Non-Linear Non-Stationary Heteroscedasticity Processes, Under Supervision of Prof. Amindavar
- Implementation of Speech Recognition Based on HMM, Under Supervision of Dr. Ahadi
- Research on Non Uniform Digital Filters and Its Application, Under Supervision of Prof. Amindavar and Dr. Ghorbani

Teaching Experiences

2017–Present **Teaching Assistance**, *Texas A&M University*, TX, USA.

- Power Systems and Circuit Applications Lab
- Analog Electronics Lab

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 **ICML Reviewer**.

2020 **PLOS ONE Journal Reviewer**.

2019 **Outstanding Graduate Student Award** from the Department of Electrical and Computer Engineering, Texas A&M University.

2019 **AAAI Reviewer**.

2019 **IEEE/ACM Transactions on Computational Biology and Bioinformatics Journal Reviewer**.

2019 **NeurIPS Reviewer**, top 50% highest-scoring reviewers.

2019 **EMBC 2019 Reviewer**.

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 **BHI2017 Reviewer**.

2013 Member of **Iranian National Elites Foundation**, Tehran, Iran.

2013-present **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).