Ali Foroughi pour

The Jackson Laboratory for genomic medicine
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EDUCATION

The Ohio State University
PhD in Electrical Engineering, 2013-2019

The Ohio State University
MSc in Mathematics, 2017-2019

Sharif University of Technology
BSc in Electrical Engineering, 2008-2013

RESEARCH INTERESTS

- Bioinformatics
- Bayesian Analysis
- Biomedical Image Analysis
- Machine Learning
- High Dimensional Model Representation (HDMR)
- Probability Theory
- Compressed Sensing
- Discrete Optimization

PUBLICATIONS

2020

- "Deep learning-based cross-classifications reveal conserved spatial behaviors within tumor histological images", J. Noorbakhsh, S. Farahmand, A. Foroughi pour, S. Namburi, D. Caruana, D. Rimm, M. Soltanieh-ha, K. Zarringhalam, J. H. Chuang bioRxiv 715656; doi: https://doi.org/10.1101/715656
- "Binary Classification for Time to Event Risk Assessment", A. Foroughi pour*, I. Loveless*, M. Pietrzak, and G. Rempala (* equal contribution), book chapter, to appear.
- "High dimensional model representation of log likelihood ratio: Binary classification with expression data", A. Foroughi pour, M. Pietrzak, L. Dalton, and G. Rempała, BMC bioinformatics, accepted.

2019

- "Bayesian Error Analysis for Feature Selection in Biomarker Discovery", A. Foroughi pour, L. Dalton, IEEE Access, vol. 7, pp. 127544–127563.
- "Theory of Optimal Bayesian Feature Filtering", A. Foroughi pour, L. Dalton, Bayesian Analysis, doi:10.1214/19-BA1182.
- "High Dimensional Model Representation of Log Likelihood Ratio: Binary Classification with SNP Data", A. Foroughi pour, M. Pietrzak, L. Sucheston-Campbell, E. Karaesmen, L. Dalton, and G. Rempala, presented at ICIBM, to appear in BMC genomics.

2018

- "Bayesian Feature Selection with Data Integration", A. Foroughi pour, L. Dalton, IEEE Global Conference on Signal and Information Processing, pp. 504-508.
- "Optimal Bayesian Feature Selection with Bounded False Discovery Rate", A. Foroughi pour, L. Dalton, Asilomar Conference on Signals, Systems, and Computers, pp. 1202-1206.
- "Optimal Bayesian Filtering for Biomarker Discovery: Performance and Robustness", A. Foroughi pour, L. Dalton, to appear in IEEE/ACM Transactions on Computational Biology and Bioinformatics.

- "Biomarker Discovery via Optimal Bayesian Feature Filtering for Structured Multiclass Data", A. Foroughi pour, L. Dalton, 9th ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics, pp. 331-340.
- "Bayesian Biomarker Discovery for RNAseq Data", A. Foroughi pour, L. Dalton, accepted poster abstract at The 5th International Workshop on Computational Network Biology: Modeling, Analysis, and Control (CNB-MAC), pp. 603-604.
- "Heuristic Algorithms for Feature Selection under Bayesian Models with Block-diagonal Covariance Structure", A. Foroughi pour, L. Dalton, BMC Bioinformatics, vol. 19, no. 3, p. 70.

2017

- "Optimal Bayesian Feature Filtering for Single Nucleotide Polymorphism Data", A. Foroughi pour, L. Dalton, In proceedings of 2017 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), pp. 2290-2292.
- 'Integrating Prior Information with Bayesian Feature Selection", A. Foroughi pour, L. Dalton, In proceedings of the 8th ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics, pp. 610-610.
- "Multiclass Bayesian Feature Selection", A. Foroughi pour, L. Dalton, In proceedings of 2017 IEEE Global Conference on Signal and Information Processing (GlobalSIP), pp. 725-729.
- "Robust Feature Selection for Block Covariance Bayesian Models", A. Foroughi pour, L. Dalton, In proceedigns of 2017 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), pp. 2696-2700.

2016

- "Optimal Bayesian Feature Selection with Missing Data", A. Foroughi pour, L. Dalton, In proceedings of 2016 IEEE Global Conference on Signal and Information Processing (GlobalSIP), pp. 35-39.
- "Multiple Sclerosis Biomarker Discovery via Bayesian Feature Selection", A. Foroughi pour, L. Dalton, In proceedings of the 7th ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics, pp. 540-541.

2015

- "Optimal Bayesian Feature Filtering", A. Foroughi pour, L. Dalton, In proceedings of the 6th ACM Conference on Bioinformatics, Computational Biology and Health Informatics, pp. 651-652.

2014

- "Optimal Bayesian Feature Selection on High Dimensional Gene Expression Data", A. Foroughi pour, L. Dalton, In proceedings of the 2014 IEEE Global Conference on Signal and Information Processing (GlobalSIP), pp. 1402-1405.

PUBLICATIONS UNDER PREPARATION

- "Optimal Bayesian Feature Filtering for Single Nucleotide Polymorphisms", A. Foroughi pour.

WORK EXPERIENCE

July 2019- present	Postdoctoral Researcher, The Jackson laboratory for genomic medicine
AUG 2017-July 2018	Graduate Research Assistant, The Ohio State University
JUN 2017-AUG 2017	Research Scientist (Internship), Howard Hughes Medical Institute
AUG 2014-May 2017	Graduate Research Assistant, The Ohio State University
JAN 2013-JUN 2013	Teaching Assistant, Digital Image Processing, Sharif University of Technology

JUL 2012-SEP 2012	Internship, Research Center for Science and Technology in Medicine, Tehran, Iran
JAN 2012-JUN 2012	Teaching Assistant, Signals and Systems, Sharif University of Technology
SEP 2011-JAN 2012	• Teaching Assistant, Analog Circuits, Sharif University of Technology • Teaching Assistant, Principles of Electrical Engineering, Sharif University of Technology
JUN 2009-SEP 2009	Volunteer work, Ghonche Khunin e Ali Asghar charity institute
FEB 2009-MAR 2009	English Teacher, Gaam-e-Sharif Language Institute, Sharif University of Technology
JUN 2008-SEP 2008	Volunteer work, Ghonche Khunin e Ali Asghar charity institute

HONORS & AWARDS

2017	• Best poster award of the 8th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB) • Second place, Kraus memorial poster competition.
2014	• Best student paper award of Genomic Signal Processing and Statistics (GENSIPS) workshop.
2013	• Distinguished University Fellowship of The Ohio State University • Ranked in top 10% of electrical engineering school of Sharif University of Technology
2009	• Member of the National Elite Foundation in Iran
2008	• Ranked 43^{rd} among 400,000+ in Iran'n national university entrance exam • Ranked 5^{th} among 10,000+ in Mashhad Azad University of Medical Sciences entrance exam
2004	• 3^{rd} place Khorasan province singles tennis competitions

Travel Awards

2019	• International Conference on Intelligent Biology and Medicine (ICIBM).
2018	• The 9th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB).
2017	• International Workshop on Computational Network Biology: Modeling, Analysis, and Control (CNB-MAC) travel award to attend the 8th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB).

2016

- International Workshop on Computational Network Biology: Modeling, Analysis, and Control (CNB-MAC) travel award to attend the 7th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB).
- Global conference on Signal and Information Processing (GlobalSIP) conference travel award.

2015

- International Workshop on Computational Network Biology: Modeling, Analysis, and Control (CNB-MAC) travel award to attend the 6th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB).

2014

- Genomic Signal Processing and Statistics (GENSIPS) workshop travel award to attend Global conference on Signal and Information Processing (GlobalSIP) conference.

COMPUTER SKILLS

- MATLAB
- python
- R
- SPSS
- C++
- CVX
- IPA
- Linux
- LaTeX

Languages

- Persian (native)
- English (proficient)
- Korean (elementary)
- Arabic (elementary)