

Hossein Sharifi-Noghabi

Bioinformatics researcher/ Data scientist/ Machine learning researcher

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<https://github.com/hosseinshn>

Technical skills

Programming languages: Python, C

Data science: Tensorflow, Pytorch, Keras, Matlab, R

Desktop and OS: Microsoft office, Latex, Photoshop, Windows, Ubuntu

Networking: CCNA, Network+

Spoken languages: Farsi, English

Work experience

Research Intern, GenomeDx Biosciences (Research collaboration) Sep 2017-Present

- ❑ Developed skills on deep unsupervised learning
- ❑ Designed and developed a novel method in Tensorflow to predict metastasis in prostate cancer using Autoencoders and transfer learning on unlabelled and labelled genomic data and improved the performance (AUC) of the state-of-the-art signatures for metastatic prostate cancer
- ❑ Developed skills to analyze data via R such as survival analysis and visualization
- ❑ Obtained experience to collaborate with researchers from different domains
- ❑ Supervisors: Dr. Elai Davicioni, Nicholas Erho, and Dr. Yang Liu (Seagle)

Research Assistant, Vancouver Prostate Centre (Full time) Mar 2017-Present

- ❑ Member of Laboratory for Advanced Genome Analysis directed by Prof. C. Collins
- ❑ Obtained basic understanding of cancer biology-particularly prostate cancer
- ❑ Presented a project on metastasis at 12th annual Robert Sullivan Research Day
- ❑ Participated in numerous research projects and grants as one of the bioinformaticians
- ❑ Volunteered in Raymond James Father's Day Walk Run for community services

Research Assistant, Simon Fraser University (Full time) Sep 2016-Present

- ❑ Member of Database and Data Mining Lab directed by Prof. Martin Ester
- ❑ Developed skills on deep unsupervised learning such as different Autoencoders, deep multi-task learning, and deep transfer learning
- ❑ Developed skills on implementing in Python-particularly deep learning frameworks
- ❑ Designed a research on studying therapy resistance in cancer via multi-modal deep networks

Research Assistant, Ferdowsi University of Mashhad (Full time) Sep 2012- Feb 2015

- ❑ Designed and implemented a project in Matlab on feature selection for genomic data using a novel information theoretic method based on correntropy for cancer classification
- ❑ Worked on a project on stochastic optimization based on Differential Evolution

Selected course/personal projects during Ph.D.

Automatic chemical compounds design via Autoencoders using SMILES representation.

- ❑ The goal was to generate new molecules via Autoencoders. The hypothesis is that its representation is rich enough to generate these molecules

- ❑ Used SMILES representations of existing chemical compounds and trained the Autoencoder on them

Mini personal projects on Convolutional Neural Networks and Recurrent Neural Networks (LSTM and GRU)

- ❑ Applied convolutional networks to visual detection and recognition tasks
- ❑ Used neural style transfer to generate new arts
- ❑ Applied RNN models to synthesis Shakespeare's text
- ❑ Applied sequence models to speech recognition and music synthesis

Selected publications

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- ❑ **H. Sharifi-Noghabi**, Y. Liu, N. Erho, R. Shrestha, M. Alshalalfa, E. Davicioni, C. Collins, M. Ester. (2018), "Deep Genomic Signature for early metastasis prediction in prostate cancer" under review. (Also accepted for oral presentation at JSM 2018-Vancouver)
 - ❑ **H. Sharifi-Noghabi**, H. Rajabi Mashhadi, and K. Shojaee. (2017), "Generalized Differential Evolution", IEEE 7th ICCKE 2017
 - ❑ **H. Sharifi-Noghabi**, H. Rajabi Mashhadi, and K. Shojaee. (2016), "A novel mutation operator based on the union of fitness and design spaces information for Differential Evolution", Soft computing (21) 6555–6562
 - ❑ M. Mohammadi, **H. Sharifi-Noghabi**, H. Rajabi Mashhadi, and G. Hodtani. (2016) "Robust and stable gene selection via Maximum-Minimum Correntropy Criterion", Genomics (170) 83-87. (joint first authorship)
 - ❑ **H. Sharifi-Noghabi**, A. Ghazi Askar, A. Boustani, A. Moghani, and M. Bahrami Zanjani. (2012), "Implementing a greedy chain routing technique with spread spectrum on grid-based WSNs", International Journal of Wireless & Mobile Networks (4) 4

Education

Ph.D. in Computer Science (GPA: A+)

Sep 2016-Present

Simon Fraser University, Burnaby, BC, Canada.

- ❑ Supervisors: Prof. Martin Ester and Prof. Colin Collins
- ❑ Courses: Machine Learning (grade: A), Bioinformatics algorithms (grade: A), Design and Analysis of Algorithms (grade: A), Big data genomics for personalized medicine (grade: A+), Deep learning—A 5-course specialization by deeplearning.ai on Coursera
- ❑ Computing Science Graduate Fellowship (\$6500 and \$7400)
- ❑ Teaching Assistant for Introduction to computer programming I (Python)

M.Sc. in Artificial Intelligence (GPA: 17.05/20)

Sep 2012-Feb 2015

Ferdowsi University of Mashhad, Iran.

- ❑ Admitted as exceptional talents student without entrance exam and with tuition remission

B.E. in Information Technology (GPA: 17.92/20)

Sep 2008-July 2012

Sadjad University of Technology, Mashhad, Iran.

- ❑ Ranked 1st among 67 students of Information Technology