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 synthesize Shakespeare's text
- ❏ Applied sequence models to speech recognition and music synthesis

Selected publications

- ❏ **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