Hossein Sharifi-Noghabi

Machine learning researcher/Bioinformatics researcher/ Data scientist

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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
- proposed 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 and developed a novel method in Pytorch to predict drug response using multi-omics profiles. This method is an end-to-end multi-view deep neural networks consisting of a triplet loss and a classification loss. It improved the performance (AUC) of the state-of-the-art single- and multi-omics methods for drug response prediction.

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

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)

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

Selected publications

- ❏ **H. Sharifi-Noghabi**, O. Zolotareva, C. C. Collins, M. Ester. (2019), "MOLI: Multi-Omics Late Integration with deep neural networks for drug response prediction" under review
- ❏ **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, 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, G. Hodtani. (2016), "Robust and stable gene selection via Maximum-Minimum Correntropy Criterion", Genomics (170) 83-87. (joint first authorship)

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