Farzad ABDOLHOSSEINI

M.Sc. in Computer Science | B.Sc. in Software Engineering

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About Me

Experienced in **machine learning** and **data science**, with a software engineering background.
Published works in **reinforcement learning** and **bioinformatics**, with experience in **computer vision**.
Witnessed a successful startup exit with Xnor.ai (bit.ly/39eWVnM).

Education

2017 - 2019 **M.Sc.** in Computer Science at **UBC**. GPA : 4.0
2013 - 2017 **B.Sc.** in Software Engineering at **Sharif University of Technology**. GPA : 94%
2009 - 2013 Diploma in Mathematics and Physics Discipline at Allame Helli High School, Tehran. GPA : 99%

Skills

Programming	Python, JavaScript, C++, Java, C#
ML Framework	Pytorch, Keras, Tensorflow, Tensorflow.js, Torch7 (Lua)
ML Paradigm	Reinforcement Learning, Computer Vision, NLP, Probabilistic Programming
Big Data	Apache Spark, Hadoop, Docker, Graph Databases
Web & UI	React.js, React Native, Django, Node.js, D3.js
Misc	Linux Administration

Professional Experience

Oct 2019 - Jan 2020 — **Machine Learning Engineer, XNOR.AI, Vancouver**
- Research and implementation of neural architecture search methods for latency minimization.
- Developed a GPU-friendly weighted matching algorithm with possible uses in keypoint estimation.

Computer Vision | Deep Learning | AutoML | PyTorch

2016 — **Data Science Intern, SEERIO** [1], **Tehran**
- Setup and maintaining a Hadoop cluster for large-scale data analysis.
- Customer segmentation using classic machine learning for the Central Bank of Iran.

Hadoop | Spark

2014 - 2015 — **Back-end Developer, NOAVARAN SARAMAD SHARIF, Tehran**
- Collection and curation of financial data for *Arzesh*, as well as maintaining the back-end.
- Arzesh is a financial platform developed for stock traders similar to Google Finance.
- It allows users to create a portfolio, track multiple markets, and play out hypothetical scenarios.

SQL | Django | REST

Honors and Awards

2013 **Bronze Medal** in the International Olympiad in Informatics (IOI), Brisbane, Australia.
2012 **Gold Medal** in the Iranian National Olympiad in Informatics (INOI), Tehran, Iran.
2011 Silver Medal in the Iranian National Olympiad in Informatics (INOI), Tehran, Iran.
2009 Outstanding Achievement award for getting a full mark in a mathematics contest from U Waterloo.

1. Sharif E-Commerce & E-Government Research & Innovation Office

Publications

2019 **On Learning Symmetric Locomotion**
F. Abdolhosseini, *Hung Yu Ling, Zhaoming Xie, Xue Bin Peng, Michiel van de Panne*. Proc. ACM SIGGRAPH Motion, Interaction, and Games (MIG 2019). Also at the NeurIPS Deep Reinforcement Learning Workshop (2019).
Reinforcement Learning | Computer Animation | Locomotion

2017 **Using Deep Neural Networks to Understand the Cell Identity by Expression Fingerprints**
F. Abdolhosseini, *A. Maazallahi, A. Kamal, H. Chitsaz, A. Sharifi-Zarchi*. Scientific Reports volume 9, Article number : 2342.
Bioinformatics | Gene Expression | Autoencoders | Torch7

2016 **Hoffmann-Ostenhof's conjecture for traceable cubic graphs**
F. Abdolhosseini, *S. Akbari, H. Hashemi, M.S. Moradian.* ArXiv.
Graph Theory

Projects

Learning Locomotion : Symmetry and Torque Limit Considerations — 2019

M.Sc. Thesis
Development and analysis of reinforcement learning (RL) methods for increasing motion quality in learned locomotion with applications in Computer Graphics and Robotics.
PyTorch | RL | PyBullet | Policy Gradients | Invariant Networks

Reinforcement Learning as Inference — 2018

Source Code
A case study on the applicability of solving reinforcement learning tasks when posed as an inference problem [S. Levine]. Uses a probabilistic programming language (Pyro) to solve a reinforcement learning task.
Pyro | PyTorch | Pybullet | Probabilistic Programming

FOPPL/HOPPL Compiler — 2018

Source Code
Metropolis within Gibbs and HMC inference engines for a first-order probabilistic programming language (FOPPL) compiler as well as a likelihood weighting interpreter for a higher-order probabilistic programming language (HOPPL).
Probabilistic Programming | Automatic Differentiation | MCMC | Compilers

Review : Semi-supervised Learning in Generative Adversarial Networks — 2017

Project Report
A review of semi-supervised learning methods that use GANs. A prevalent theme in these methods was simply combining a supervised classification loss with the unsupervised GAN loss in order to make use of the huge set of unlabeled data.
GAN | Semi-Supervised Learning | Machine Learning

Snake Locomotion — 2017

Project Report
Simulating snake locomotion using PyBullet. Models how a snake can physically move by exerting forces on the ground. The motion is then optimized using reinforcement learning.
Simulation | PyBullet | RL