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EDUCATION

New York, NY   **Columbia University**   **September 2014 - Present**
- Ph.D. Candidate in Computer Science, GPA: 3.82, expected graduation: May 2019. Advised by Liam Paninski

Courses: Graphical Models, Convex Optimization, Deep Learning, Statistical Analysis of Neural Data, Probabilistic Models for Discrete Data, Bayesian Data Analysis

- M.S. in Computer Science   **September 2012 – December 2013**

Courses: Machine Learning, Statistical ML, Computer Vision, Social Networks Analysis, Linear Optimization, Algorithms, AI

Tehran, Iran   **Sharif University of Technology**   **September 2007 – June 2012**
- B.S. in Computer Engineering-Software Engineering

Among 0.1% top contenders in National University Entrance Exam, 2007, Iran

PROFESSIONAL & RESEARCH EXPERIENCE

Graduate Research Assistant   **Columbia University**   **September 2014 - Present**

Project: Variational Inference for Latent Nonlinear Dynamics
- Proposed a class of structured normalizing flows to perform auto-encoding variational Bayes inference.
- Implemented open source library for Inference of latent non-linear dynamical systems (Python and TensorFlow).

Project: YASS, MEA Spike Sorting
- Designed and implemented novel scalable bayesian inference, deconvolution for large multi-electrode array recordings.
- Contributed to open source spike sorting software (Python, TensorFlow, Matlab).

Project: Enriched Topic Modeling (NLP)
- Devised and implemented pipeline to produce novel low dimensional representation of documents that exploits probabilistic topic models (i.e. LDA) and syntactic and frame semantic information (Java, Python, Bash).

Project: Intelligent Wireless Charging for Electric Buses in Smart City
- Proposed a novel featurization of public transit data and a mixture of Multinomials to model historical data.
- Showcased optimal wireless charging pad placement for NYC B63 bus line using heuristic search on real data augmented by simulations (Python).

Software Engineering Intern (Ph.D.)   **Google Inc., Mountain View**   **June 2017 – September 2017**
- AdsQuality, Model understanding & Bayesian inference for deep learning models.
- Expanded production framework for understanding deep feed-forward models (C++, Python, TensorFlow).

Research Coordinator   **Columbia University**   **February 2014 – September 2014**

Project: Di-BOSS - Digital Building Operating System Solution (Smart City)
- Lead engineer and researcher for stochastic control system for commercial smart building software (Python, SQL).
- Devised and implemented recommendations system for ramp up/down of HVAC.
- Implemented data monitoring and dashboard and anomaly detection procedure. (C#)
- Improved Average RMSE of 12 hour future predictions by 5%.

PUBLICATIONS & PRESENTATIONS

YASS: Yet Another Spike Sorter. [PDF|CODE],
(With Jin Hyung Lee, David Carlson, Espen Hagen, Gaute Einevoll, Liam Paninski), NIPS 2017.

Omnimixture: Enriched Topic Modeling [CODE],
(With Lauren A. Hannah, Rebecca J. Passonneau, Ruilin Zhong).

Intelligent Wireless Charging for Electric Buses in Smart City (Poster),
 (With Albert Boulanger, Ton Dieker, and Promiti Dutta), Columbia University Data Science Day Conference, 2015.

Adaptive Stochastic Controller for Smart Buildings (Poster),
(With Roger N. Anderson, Albert Boulanger, Promiti Dutta, and Ashish Gagneja), New York Academy of Sciences ML Conference, 2014.

Di-BOSS: Digital Building Operating System Solution (Poster),
(With Roger N. Anderson, Albert Boulanger, Vaibhav Bhandari, Jessica Forde, Ashwath Rajan, Vivek Rathod), NIPS, 2013.

An Efficient Simulated Annealing Approach to Traveling Tournament Problem [PDF]
(With Sevnaz Nourollahi, Kourosh Eshghi), American Journal of Operations Research, AJOR, Vol.2 No.3, September 2012.

TALKS

Yass: Yet Another Spike Sorter, Vector Institute, Toronto, Canada	November 2017
Fast and Accurate Processing of Large Scale Neural Recordings, Ecobee Data Science, Canada	April 2018

TECHNICAL SKILLS

Python, C++, Java, C#, MATLAB, R
Machine Learning & Data Analysis: TensorFlow, Scikit-Learn, Pandas, Matplotlib
Big Data & Distributed: MapReduce, Spark, Hadoop
Operating Systems: Linux/UNIX, Mac, Microsoft Windows

ADDITIONAL EXPERIENCE AND AWARDS

2nd place (of 15 teams) for a Smart Cities Project, Startup Weekend by TechStars, Toronto	October 2017
Head Teaching Assistant, Discrete Math, Columbia University	September -December 2015
Instructor, Introduction to Calculus, Barnard College	June - August 2015
Member of The National Organization for Development of Exceptional Talents, Iran	

VOLUNTEERING

Amnesty International, New York Group 11	June 2018 - Present
Animal Project Rescue Group, New York	September 2014 - May 2015