Resume

Meysam Alishahi (Computing PhD)

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About Me

- Data Scientist with high proficiency in Machine Learning, Deep Learning, Reinforcement Learning, and Data Mining.
- Expert in Probabilistic Modeling, Bayesian inference, Problem Solving, and Doing Mathematics and Statistics. Graph Theory and its Applications
- 5+ years of research experience in data science and 16+ years in mathematics.
- Skilled in Python, C++, SQL, Excel and Git.

Graduate Education

Spring 2022 – present	University of Utah, PhD candidate in Computing; GPA: 3.98 **Advisor**: Professor Jeff M. Phillips
Fall 2006 – 2010	Shahid Beheshti University, PhD in Mathematics (Graph theory); GPA: 4 **Advisor**: Professor Hossein Hajiabolhassan
Fall 2004 – 2006	Sharif University of Technology, M.S. in Mathemtics; GPA: 3.9 **Advisor**: Professor E. Mahmoodian

Professional Experience Google Scholar

Spring 2022 – Present	Research Assistant at the University of Utah
Spring 2022 – 2023	Teaching Assistant at the University of Utah
Fall 2010 – spring 2022	Associate professor at Shahrood Univeristy of Technology

Selected Machine Learning-Related Skills

- **Python Libraries**: Numpy, Pandas, Matplotlib, PyTorch, Seaborn, SciPy, etc.
- **Classification**: Nearest Neighbors Classifier, SVM, Decision Trees, Random Forests, Deep Neural Networks (FC-NN, CNN, RNN).
- **Regression**: Linear Regression, Ridge Regression, Lasso Regression and Kernel Regression.
- **Clustering**: k-Means, k-Means++, k-Mediod, Spectral, Hierarchical.
- **Modern Learning Approaches**: Transformers, Fine-Tuning, Few-Shot Learning.
- **Dimensionality Reduction**: SVD, PCA, Auto Encoder-Decoders and Johnson-Lindenstrauss Transform.
- **Feature Engineering**: Employing landmarks to extract features from trajectory datasets as well as utilizing deep neural networks for feature extraction;
- **Optimization Techniques**: Gradient Descent Approaches (SGD), Mistake-Driven Algorithms.
- **(Deep) Reinforcement Learnin**: Multi-armed Bandits, Monte Carlo Methods, Temporal-Difference Learning, On-policy & Off-policy methods, Policy Gradient Methods.

Selected Projects

1. **Linear Distance Metric Learning with Noisy Labeling.** Implemented in PyTorch. GitHub.com/Linear-Distance-Metric-Learning
2. **A hybrid of (Bayesian) Neural Networks and Polynomials for Physics Informed Machine Learning.** Implemented in PyTorch. GitHub.com/OrientPreservDist
3. **Comparing the Performances of Different Clustering Techniques on the Real World Data.** This project mainly focuses on the implementation and performance evaluation of some clustering algorithms on the Credit Card data set. We try to combine some non-linear reduction methods (such as autoencoder) to derive the underlying distribution of the data which is a new method to detect fraud use.
4. **Concurrency and Contention Hotspot.** Detecting the contention hotspots in a reader-writer lock and fixing the contention using a distributed counter.
5. **Logging and Recovery.** Implementing write-ahead logging and recovery in a disk-based single-threaded version of the key-value store.

Selected Publications In Data Science and Mathematics

(See my **Google Scholar** for a full list of my publications.)

1. M. Alishahi, A. Little, J. M. Phillips Linear Distance Metric Learning with Noisy Labels. *arXiv*, 2023
2. M. Alishahi and F. Meunier. Topological bounds for graph representations over any field. *SIAM J. DISCRETE MATH.*, 2021
3. M. Alishahi, E. Rezaei-Sani, and E. Sharifi. Maximum Nullity and Forcing Number on Graphs with Maximum Degree at most Three. *Discrete Applied Mathematics*, 2020.
4. M. Alishahi and H. Hajiabolhassan. On The Chromatic Number of Matching Graphs. *Combinatorics, Probability, and Computing*, 2019.
5. M. Alishahi and H. Hajiabolhassan. On Chromatic Number and Minimum Cut. *Journal of combinatorial theory, series B*, 2019.
6. M. Alishahi and A. Taherkhani. On the random version of the Erdős matching conjecture. *Discrete applied mathematics*, 2019
7. M. Alishahi and A. Taherkhani. Extremal G-free induced subgraphs of Kneser graphs. *Journal of Combinatorial Theory, Series A*, 2018.
8. R. Abyazi Sani and M. Alishahi. A new lower bound for the chromatic number of general Kneser hypergraphs. *European Journal of Combinatorics*, 2018
9. M. Alishahi and H. Hajiabolhassan. A Generalization of Gale's lemma. *J. Graph Theory*, 2018.
10. M. Alishahi and H. Hajiabolhassan. Chromatic Number of Random Kneser Hypergraphs. *Journal of Combinatorial Theory, Series A*, 2018
11. M. Alishahi and F. Meunier. Fair splitting of colored paths. *Electron. J. Combin.*, 2017.
12. M. Alishahi. Colorful Subhypergraphs in Uniform Hypergraphs. *Electron. J. Combin.*, 2017.