Sahitya **Mantravadi**

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Education

Stanford University *Stanford, CA*

M.S. in Computational and Mathematical Engineering *Graduated: June 2019*

Relevant Coursework: Machine Learning, Deep Learning, Numerical Linear Algebra, Principles of Software Engineering, Applied Statistics: Learning and Data Mining, Computer Vision, Optimization, Partial Differential Equations, Parallel Computing with OpenMP, MPI, & CUDA, Deep Generative Models, Algorithmic Game Theory, Mining Massive Datasets

Cornell University *Ithaca, NY*

B.S. in Computer Science *Graduated: May 2017*

Jacobs Scholar and Jacobs Engineering Scholar, Deans List all semesters

Work & Research Experience

Microsoft *Cambridge, MA*

Data & Applied Scientist *July 2019 – Present*

- Implemented personalization for Outlook SmartCompose in offline experimentation by constructing n-gram models per user and interpolating probabilities from user personalized n-gram models with global LSTM
- Showed performance lift for a set 3265 Reddit users
- Learned constant of interpolation from user characteristics instead of keeping interpolation constant fixed for all users
- Created a train, validation, and test data set from public Reddit data to train and evaluate personalized and interpolated models; came up with an efficient sampling methodology while also avoiding time and user data leakage

Lawrence Livermore National Lab *Livermore, CA*

Data Science Summer Scholar - Machine Learning Group, Computational Engineering Division *June 2018 – September 2018*

- Researched computer vision techniques for video data to enable object-centric scene understanding and representation learning
- Combined optical flow with a deep recurrent attention model for object tracking in TensorFlow
- Developed multi-modal models for text, audio, image, and video modalities to advance nuclear non-proliferation efforts
- Created an image classification model in PyTorch to monitor CO_2 microcapsules in transport for carbon capture and storage

Stanford Department of Statistics & Department of Biomedical Data Science *Stanford, CA*

Research Assistant, joint work with Professor Chiara Sabatti and Professor Emmanuel Candes *January 2018 - June 2018*

- Performed quality control and exploratory analysis on UK Biobank dataset (genotypes for 500,000 individuals)
- Implemented parallelized ADMM (alternating direction method of multipliers for convex optimization problems) in MPI and C for LASSO on large sparse datasets for genome-wide association studies
- Work featured in publication: Multi-resolution localization of causal variants across the genome

Goldman Sachs *New York, NY*

Securities Strats Summer Associate *June 2017 – August 2017*

Securities Strats Summer Analyst *June 2016 – August 2016*

- Program Trading Strats: Researched ETF composition methods and differences in reported ETF holdings versus creation/redemption baskets to propose more effective hedging strategies for large-volume trades
- Commodities Trading Strats: Analyzed and optimized firm positions in electricity and power markets based on a shift factor model; Designed regression-based models to predict supply and demand of crude oil, gasoline, and distillates from empirical shipment data

Publications & Talks

Shao, L., **Mantravadi, S.**, Manzini, T., Buendia, A., Knoertzer, M., Srinivasan, S., & Quirk, C. 2020. Examination and Extension of Strategies for Improving Personalized Language Modeling via Interpolation. **ACL 2020** Workshop: Natural Language Interfaces

Mantravadi, S., Li, M.. 2020. Microsoft MLADS. Talk titled: Correlation Network Construction to Improve Incident Mitigation Time

Skills & Interests

Mathematical Modeling Applied Statistics, Numerical Linear Algebra, Partial Differential Equations, Optimization, Machine Learning
Programming Languages & Libraries Python, PyTorch, Tensorflow, C++, C, Java, Matlab, OCaml, R, SQL
Parallel & Distributed Computing OpenMP, MPI, CUDA, Spark, Hadoop, MapReduce
Interests Guitar · Yoga · Wines · Astrophysics · Reading · Teaching