Sahitya **Mantravadi**

sahitya.mantravadi@gmail.com | (510) 579 3695 | in/sahityamantravadi | sahityamantravadi.com

Education

Stanford University *Stanford, CA*

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

Teaching: Machine Learning (CS 229), Probability & Statistics (CME 106), Vector Calculus (CME 100)

Cornell University *Ithaca, NY*

B.S. in Computer Science, College of Engineering *Graduated: May 2017*

Jacobs Scholar and Jacobs Engineering Scholar, Head TA for Machine Learning (CS 4780/5780)

Work & Research Experience

Microsoft *New York, NY*

Data Scientist II *August 2021 - Present*

Data & Applied Scientist *July 2019 – August 2021*

- Engineered BERT, XLNet, T5, and other Transformer-based models for custom NLP scenarios in the finance domain
- Established continual pretraining pipelines with unique objectives on large-scale data to fit general LMs to target domains
- 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
- 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
- Experimented on large, independent slices of Reddit users and exhibited significant performance lift

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 CO2 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

Gupte, A., Romanov, A., **Mantravadi, S.**, Banda, D., Liu, J., Khan, R., Meenal, L., Han, B., & Srinivasan, S. 2021. Lights, Camera, Action! A Framework to Improve NLP Accuracy over OCR documents. **KDD 2021** Workshop: Document Intelligence.

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

Machine Learning Natural language processing, Transformer-based models, Optimization, Supervised, self-supervised, and unsupervised methods, Deep learning, Statistical learning, Computer vision

Technologies Python, C++, C, Matlab, R, SQL, OpenMP, MPI, Spark, Hadoop, PyTorch, TensorFlow

Interests Guitar · Yoga · Wines · Astrophysics · Reading · Teaching · Plants