Ashwin Bhola

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Education

New York University
New York, NY

MS in Data Science | GPA: 4.0/4.0 *Expected May 2020*

- Coursework: Machine Learning, Probability and Statistics, Optimization and Computational Linear Algebra
- Member, The Leadership Circle, Center for Data Science

Indian Institute of Technology Delhi
Delhi, India

B.Tech in Chemical Engineering | GPA: 8.4/10 *May 2018*

- Coursework highlights: Design and Analysis of Algorithms, Stochastic processes, Multivariable Calculus
- Coordinator, TRYST: Led a three tier team of ac-heads and volunteers to manage publicity of 100+ events

Projects

Semantic Segmentation |

- Implemented the Unet architecture with pixel shuffle for dense prediction on Cityscapes dataset
- Devised a new training loss function to enforce background prediction for inconsistent structures
- Achieved 0.826 mean IoU on the holdout set

DeepRecommender |

- Developed a model for the rating prediction task in recommender systems using Autoencoders
- Refined the model using dense refeeding and dropout regularization
- Achieved 0.925 RMSE on the holdout set of Amazon android apps ratings

Financial time series forecast |

- Devised a Dual-Stage Attention-Based RNN to predict DJIA stock closing prices for the next 50 days from historic data
- Incorporated feature engineering techniques including moving averages and exponential moving averages
- Achieved 92% directional accuracy on the test set

Flight delays prediction |

- Developed a framework to predict flight delays based on historical delays, past weather data and US Bank holidays data
- Performed feature transformations on input and target variables to improve model performance
- Achieved 0.78 AUC on the holdout set using ensemble methods

Image Inpainting |

- Implemented DCGAN architecture for image completion task resulting in locally and globally consistent images
- Achieved 0.0003 MSE on CelebA dataset

Experience

Harvard Medical School
Boston, MA

Research Intern | Advisor: Dr. Jeremy Gunawardena *May 2017 - July 2017*

- Simulated a Markov chain using the Monte Carlo method to mimic a genetic network
- Used Principal Component analysis for feature engineering and logistic regression for classification
- Statistical analysis and analytical calculations correlated strongly with the experimental observations

Nanotechnology Laboratory, IIT Delhi
Delhi, India

Research Assistant | Advisor: Dr. Shalini Gupta *Dec 2016 - May 2018*

- Optimized the performance of a diagnostic device with respect to the concentration, temperature, and humidity
- Modeled the kinetics of adsorption and binding of ligands to the device
- Applied nonlinear regression analysis on experimental data sets yielding R^2 values as high as 0.98

Publications

- Kalita P., **Bhola A.**, Goel N., Sritharan V. and Gupta S., 'Heterogeneous Endotoxin Detection Bioassay using Drug-nanoparticle Bioconjugates: An Optimization Study', *Molecular Systems Design and Engineering*, 2 , 470-477 (**2017**)
- Goel M., **Bhola A.**, Singh A., and Gupta S., 'Tunable assembly of gold nanoparticles using a combination of electrohydrodynamic and dielectrophoretic forces' (**Submitted**)

Skills

Languages Python (proficient), MATLAB (proficient), Java (familiar), C/C++ (familiar)

Tools and Technologies PyTorch, PySpark, scikit-learn, Hadoop, SQL, Git, LaTeX