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 highlights: Machine Learning, Big Data, 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

Experience

IBM
New York, NY

Cognitive Engineer Consultant Intern | Watson Healthcare & Life Sciences *June 2019 - August 2019*

- Responsible for the successful delivery of data science solutions and services in a client consulting environment
- Built an end-to-end system to process, manipulate, and analyze text from PDF documents and news articles
- Developed entity and relationship extraction models using n-gram similarities and Markov chain achieving F1 score of 0.5
- Employed dynamic systems that improve learning based on outcomes to get smarter with each iteration

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

Projects

Knowledge Transfer in Reinforcement Learning |
- Analyzed RL agents in the context of generalizing prior experiences to new unseen environments
- Trained the agent using Deep-Q leaning with experience replay algorithm coupled with different transfer learning regimes
- Employed the policy learned in one environment to evaluate the difference in the agent's learning time in a second environment

DeepRecommender |
- Developed a model for the rating prediction task in recommender systems using Autoencoders
- Refined the model using dense refeeding as a data augmentation technique
- Achieved 0.925 RMSE on the holdout set of Amazon android apps ratings

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

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

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

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