

# Ashwin Bhola

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## Education

### New York University

MS IN DATA SCIENCE | GPA: 4.0/4.0

New York, NY

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

B.TECH IN CHEMICAL ENGINEERING | GPA: 8.4/10

Delhi, India

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

### 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

### DeepRecommender | 📈

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

### Flight delays prediction | 📈

- Developed a framework to predict flight delays for flights departing from JFK airport based on historical data of flight 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

### Sentiment Analysis | 📈

- Designed a bidirectional multilayer LSTM to categorize Amazon reviews as positive and negative
- Achieved classification accuracy of 0.952 on the test set

### 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

RESEARCH INTERN | ADVISOR: DR. JEREMY GUNAWARDENA

Boston, MA

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

RESEARCH ASSISTANT | ADVISOR: DR. SHALINI GUPTA

Delhi, India

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, scikit-learn, Hadoop, SQL, Git,  $\LaTeX$