

# 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*

- Section Leader for the undergraduate Introduction to Data Science course, Spring 2020
- Section Leader for the graduate Optimization and Computational Linear Algebra course, Fall 2019
- Coursework highlights: Natural Language Processing, Machine Learning, Big Data, Probability and Statistics

### 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

## Experience

### NYU Langone Health

GRADUATE RESEARCHER | ADVISOR: DR. KRZYSZTOF GERAS

NEW YORK, NY

*August 2019 - Present*

- Working on detection and localization of malignant lesions in screening mammography exam images
- Remodeled Faster-RCNN with the attention mechanism and fewer proposals
- Improved existing model's AUC from 0.91 to 0.935

### IBM

COGNITIVE ENGINEER CONSULTANT INTERN | WATSON HEALTHCARE & LIFE SCIENCES

NEW YORK, NY

*June 2019 - August 2019*

- Responsible for the successful delivery of data science solutions and services in a client consulting environment
- Developed an end-to-end automated system to analyze PDF documents using Markov chain based information extraction model
- Built in a dynamic training scheme based on learning curve analysis. Achieved F1 score of 0.52

### Harvard Medical School

RESEARCH INTERN | ADVISOR: DR. JEREMY GUNAWARDENA

BOSTON, MA

*May 2017 - July 2017*

- Simulated a Markov chain to mimic a genetic network
- Used Principal Component analysis for feature engineering and logistic regression for classification

## 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 learning 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

### 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)

### Tools and Technologies

PyTorch, PySpark, scikit-learn, Hadoop, SQL, Git,  $\text{\LaTeX}$