

HARRISON ZHAO

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EDUCATION

CORNELL UNIVERSITY

New York, NY

M.Eng. in Operations Research and Information Engineering, May 2018 (*GPA: 3.9*)

Relevant Courses: Applied Machine Learning, Modeling under Uncertainty, Optimization Methods, Natural Language Processing, Computer Vision

UNIVERSITY OF CALIFORNIA, IRVINE

Irvine, CA

Bachelor's in Mathematics, with a minor in Economics, March 2017 (*GPA: 3.8*)

SKILLS

Programming: Python (Scikit-learn, Scipy, Pandas, Nltk, Matplotlib, Dash/Plotly), R, SQL, Swift

Optimization: CPLEX, Gurobi, CBC, Pulp, Glop

Deep Learning: PyTorch, Tensorflow, Keras, CoreML

Cloud Computing: Domino, AWS EC2, AWS S3

EXPERIENCE

2018.06

BAYER CROP SCIENCE

St. Louis, MO

– present

Associate Data Scientist

Built a two-stage (prediction and prescription) model for soybean field testing allocation in North America

- Designed a recurrent neural network (LSTM) to predict allocation preference for each group of testing seeds and used predictions to guide the prescription model to find the best allocation plan.
- Built a large-scale (~ 120k decision variables) mixed integer program model with CPLEX to optimize allocation according business rules.
- Delivered allocations for 1.2 million plots in North America. Improved metrics on maturity matching, environmental diversity by 10%.
- Built an interactive web application with Dash for our stakeholders to review the results.

Attended a 3-week internal hackathon to predict planted acres and won 2nd place

- Implemented a smart pipeline that automatically pull all the data (3000+ tables) from the database and select important features by their univariate correlations and multivariate correlations.
- Trained a random forest to predict planned acres and reduced absolute error to 7%.

2017.12

CORNELL TECH

New York, NY

– 2018.5

Graduate Research Assistant

Worked with PHD students to use natural language queries to control a drone to fly in the desired trajectory

- Built a recurrent neural network with self-attention mechanism for language embedding. Enabled the system to better capture key words in the natural language queries. ([link](#))

PROJECTS

2017.11

Simulated Self-Driving Car, Udacity

New York, NY

– 2018.01

Built an autopilot program in a simulator with Tensorflow and trained on AWS EC2.

- Implemented Nvidia self-driving architecture to train a convolution neural network model with 40,000 driving images to predict steering angle.
- The trained model is able to drive smoothly in a simulated mountain track. ([link](#))

2017.08

Network Revenue Management with Fare-Locking, Cornell Tech

New York, NY

– 2018.12

An optimization research project to maximize airline network revenue

- Constructed airline networks in Python and solved the linear program by using Gurobi to find the optimal pricing policy to maximize the total revenue. ([link](#))

Other projects: [Image Search Engine](#), [nonMNIST](#), [House Prices](#), [Sentiment Analysis](#)

CERTIFICATE

- Passed Exam P – Probability, Society of Actuaries, May 2015
- Applied Data Science with Python, University of Michigan, January 2017