

# ZHANHAO (NEO) ZHANG

New York, NY • 206-483-5689 • zz564@cornell.edu • <https://zhangz73.github.io/>

## EDUCATIONAL BACKGROUND

### Cornell University, Ithaca, NY

May 2026

Major: Ph.D. Operations Research. GPA: 4.0+/4.0. Advisors: Jim Dai, Manxi Wu.

### Columbia University, New York, NY

Dec 2021

Major: M.A. Statistics. GPA: 4.0+/4.0. Awards: Chair's List, MA General Scholarship.

### University of Washington, Seattle, WA

Jun 2020

Major: B.S. Statistics, B.S. Computer Science. Minor: Mathematics, Chemistry. GPA: 3.92/4.0.

Awards: Magna Cum Laude, Dean's List (All Quarters), Phi Beta Kappa

PROGRAMMING: Python (NumPy, SciPy, Scikit-Learn, Pandas, PyTorch, Matplotlib, Joblib, PySpark), R, Database (SQL, SQL++, Hive), Website (HTML/CSS, JavaScript, PHP), Java, C/C++, Shell/Bash, Excel, PowerPoints.

## PROFESSIONAL EXPERIENCE

### Aetna at CVS Health, New York, NY

Jun 2021 – Jul 2022

#### DATA SCIENTIST

Technologies: Python, Hive SQL, NLP, Sklearn, PyTorch, NLTK, JavaScript

- Draw business insights of member disenrollment using supervised machine learning models, natural language processing, and Monte-Carlo simulation. Provide actionable recommendations to senior leadership from non-tech backgrounds.
- Automate and engineerize the data collection, data cleaning, modeling, visualization, and report summary pipelines with python and JavaScript. Saved 100+ analyst hours through vectorization (Python) and multi-threading with asynchronization (JavaScript).

### Percolata, Palo Alto, CA

Sep 2020 – Jun 2021

#### MACHINE LEARNING INTERN (Part-Time)

Technologies: Python, SQL, Deep Learning, Time Series Forecasting

- Explore and implement machine learning models for stock price forecasting and algorithmic trading.
- Design, debug, implement, and test the stock trading application on google cloud platform using Python. Implement ETL-based data warehouse for data from BigQuery tables and Alpaca's API. Refactor and maintain staging and production environments.

### Paul G. Allen School of Computer Science, Seattle, WA

Apr 2020 – Feb 2021

#### RESEARCH ASSISTANT (COVID-19 PROJECT)

Technologies: Python, Parallel Programming

- Lead coding initiatives for the pandemic transmission simulation enabling alterations of social network, virus transmission rates, and disease control policies using the SIR model in Python. Monitor and forecast the infection status with Monte Carlo Simulation. Perform boundary detection of pandemic outbreak using BFS.
- Simulate the entire pandemic transmission process of a connected network of 250K individuals within 3 minutes by using parallelism. Conduct batch experiments with 10K+ simulations and visualize the functional relationships between the accuracy rate and features of the pandemic and social network.

### Institute for Health Metrics and Evaluation, Seattle, WA

February 2019 – September 2019

#### RESEARCH ASSISTANT (MALARIA PROJECT)

Technologies: R, ggplot2, Raster, MapTools, tidyverse, doParallel

- Researched and executed Iterative Filtering, Least Square Method, and Particle MCMC in R to fit parameters in differential equation systems. Conducted tests with 10+ algorithms to forecast traveling flows across territories within Equatorial Guinea. Accelerated data cleaning and model training process by vectorizations using linear algebra.
- Saved 80% storage space for repeated simulations by wrangling data output format. Implemented ETL to prepare data across different sources for model training. Employed statistical tests to expedite posterior inference to assess the model performance. Utilized ggplot to create plots to foresee model functionality. Used Raster and MapTools to plot commuting flows on a map.

## SELECTED PUBLICATIONS & WORKING PAPERS

### **Scalable Deep Reinforcement Learning for Ride-Hailing with Electric Vehicles**

(In Progress)

Zhanhao Zhang, Jim Dai, Manxi Wu.

### **Deep Learning Algorithms for an Equilibrium Model with Frictions**

(In Progress)

Xiaofei Shi, Zhanhao Zhang.

### **Rest-Activity Rhythms are Associated with Prevalent Cardiovascular Disease, Hypertension, Obesity, and Central Adiposity in a Nationally Representative Sample of US Adults**

Nov 2023

Makarem et al. *Journal of the American Heart Association* 13 (2024). <https://doi.org/10.1161/JAHA.122.032073>

### **Capacity allocation and pricing of high occupancy toll lane systems with heterogeneous travelers**

Jul 2023

HariPriya Pulyassary, Ruifan Yang, Zhanhao Zhang, Manxi Wu. 62nd IEEE Conference on Decision and Control, 2023.

### **Deep Learning Algorithms for Hedging With Frictions**

Mar 2023

Xiaofei Shi, Daran Xu, Zhanhao Zhang. *Digital Finance* 5, 113–147 (2023). <https://doi.org/10.1007/s42521-023-00075-z>