ZHANHAO (NEO) ZHANG

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EDUCATIONAL BACKGROUND

Cornell University, Ithaca, NY May 2027
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

Cornell University, Ithaca, NY Jan 2024 – May 2024
COURSE INSTRUCTOR (Big Data Technologies) Technologies: Bash, Python, PySpark, SQL, GitHub

- Give lecture 3 times a week to a class size of 80 students (mostly master's and PhD students from Cornell operations research), covering basic data cleaning, data analysis, and big data tools in Python and SQL.
- Hold weekly office hours, make homework assignments and answer keys, and facilitate gradings with teaching assistants.

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. 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.

SELECTED PUBLICATIONS & WORKING PAPERS

Atomic Proximal Policy Optimization for Electric Robo-Taxi Dispatch and Charger Allocation (Preparing for Submission to Transportation Science)
Zhanhao Zhang, Jim Dai, Manxi Wu.

Atomic reinforcement learning for stochastic networks with multiple server classes (Working Paper)
Zhanhao Zhang, Jim Dai, Manxi Wu.

Designing High-Occupancy Toll Lanes: A Game-Theoretic Analysis (Submitted to Transportation Science)
Zhanhao Zhang, Ruifan Yang, Manxi Wu. https://arxiv.org/abs/2408.01413

Reinforced GANs for Financial Market Equilibria (Preparing for Submission to Quantitative Finance)
Xiaofei Shi, Qiang Sun, 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