ZACHARY HORTON

704-219-8999 | zhhorton@mit.edu | LinkedIn | Project Portfolio

EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY Cambridge, MA

Candidate for Master of Business Analytics, Operations Research Center, August 2024, GPA 5.00/5.00 2023 - Present

- Coursework: Machine Learning, Optimization, Deep Learning, Product Analytics, and Software Systems for Data Science
- Deep Learning: Built a transformer model to generate queries and analyze S&P 500 forecasts from LSTMs [Demo] (Python)
- Realtime Analytics: Optimal rideshare service decision-making using machine and reinforcement learning (Python)
- Machine Learning Project: Improving K-means and K-medoids clustering using mixed-integer optimization (Julia)

NORTH CAROLINA STATE UNIVERSITY Raleigh, NC

Bachelor of Science in Industrial & Systems Engineering, Minor in Statistics, GPA 4.00/4.00 2019 - 2023

- Honors: Health Systems Engineering Certificate, Scholars Program, 1st Place Spring Senior Design Competition, President of ASQ Student Branch, Engineering Ambassador, Student Representative for NC State Engineering Foundation
- Member of the North Carolina State Club Baseball Team for 3 years

TECHNICAL SKILLS

- Programming: SQL | Python (Pandas, NumPy, Scikit-Learn, TensorFlow) | R (tidyverse, ggplot2) | Julia | SAS | OOP
- Software: Databricks | Spark | Salesforce | Tableau | PowerBI | Git | Streamlit
- Certificates: AWS Certified Cloud Practitioner (in-progress) | Cognitir Advanced SQL | Cognitir Intro to SQL

EXPERIENCE

MIT | THERMO FISHER SCIENTIFIC Cambridge, MA

Data Science Intern, Capstone Project (7 months) Spring 2024 - Present

- Building ETL pipeline and machine learning models to forecast demand using Salesforce and financial data (Python)

MIT | NATIONAL INSURANCE CRIME BUREAU Cambridge, MA

Data Science Intern, Analytics Lab Project Fall 2023

- Engineered machine learning system with an AUC of 0.83 to predict fraudulent claims and identify high-fraud events from 127 tropical storms to enhance workload forecasting and reduce $200K in annual investigative expenses (Julia, Python, R)
- Examined 690,000 fraudulent claims spanning 18 years to discern distinguishing factors of storm-related fraud (Tableau)

CORNING INCORPORATED Charlotte, NC

Manufacturing Data Analytics Intern 2022 - 2023

- Automated ETL pipeline for monthly sales data from 2018 to increase velocity and availability, leveraging natural language processing with Meta's LLM (BART) to analyze 7.3 million rows, adding customer-level granularity to analytics (Python)
- Generated 83 process quality metrics utilizing a convolutional neural network computer vision model in Databricks, earning finalist recognition for the Manufacturing Leadership Council: Engineering & Production Technology award (Python, SQL)
- Showcased project outcomes and strategic impact to CDIO and senior IT leaders across Corning's 5 major business units

UNC REX HOSPITAL Raleigh, NC

Spring Senior Design Project Team Member Spring 2023

- Accomplished goal of decreasing daily backlog of surgical trays from 600 to 75 by developing an optimized scheduling model; reduced required FTEs from 15 to 10 and weekly hours from 584 to 405 compared to previous schedule (R)
- Presented findings, experiences, and future recommendations to senior clinicians, nurses, and hospital managers (Tableau)

DUKE HEALTH Durham, NC

Fall Senior Design Project Team Member Fall 2022

- Developed KPIs focusing on room utilization, cancellation frequency, and scheduling patterns to drive average room utilization up from 30% to 85% while upholding a high quality of care (Python, R)
- Recommended 3-phase approach to clinical leadership to meet utilization goal and improve KPIs (Python, R, Tableau)

NC STATE UNDERGRADUATE RESEARCH Raleigh, NC

SimOpt GUI Developer Summer 2021 - Spring 2023

- Created graphical user interface (GUI) for open-source simulation and optimization library and acknowledged for contributions in research paper published in the INFORMS Journal on Computing 35(2):495-508 (Python, Git)

Diabetic Retinopathy (DR) and Macular Edema (ME) Researcher Spring 2022

- Applied linear models and continuous time Markov-chains to model the progression of DR and ME for 400,000+ patients (R)

ADDITIONAL INFORMATION

- Interests: lifelong baseball player and skier; drafting recipe book for young adults and new cooks