

## ZACHARY HORTON

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### EDUCATION

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY, SLOAN SCHOOL OF MANAGEMENT** 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 generate SQL queries to 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, 1<sup>st</sup> 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 | Julia | SAS | Object Oriented Programming
- Software: Databricks | Spark | Salesforce | Tableau | PowerBI | Git | Streamlit
- Certificates: AWS Certified Cloud Practitioner (in-progress) | Cognitir Advanced SQL | Cognitir Intro to SQL

### EXPERIENCE

**MIT SLOAN | 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 SLOAN | NATIONAL INSURANCE CRIME BUREAU** Cambridge, MA  
*Analytics Lab Team Member* 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 KIPs (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