

DUANCHEN LIU

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EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Cambridge, MA

Master of Business Analytics, Operations Research Center, GPA: 5.0/5.0

Aug 2022 – Aug 2023

- Coursework: Machine Learning (ML), Optimization Method, Advanced Analytics Edge, Analytics Lab, Deep Learning (DL)
- ML Project: Optimal prescriptive analysis on employee retention plan (XGB, OCT, etc); ~\$150k annual savings (Julia, Python)
- DL Project: Developed pipeline-based AI travel assistant leveraging Whisper audio-to-text conversion, ChatGPT API and Google API for location & events information, and BERT transfer learning for event classification, 95% accuracy (Python - TensorFlow)
- Analytics Edge Project: Popularity prediction with 170K songs (10 classification models), 36% accuracy improvement (Python)
- Optimization Project: Global vaccine distribution optimization on cost saving strategy and equitable concerns (R, Julia)
- Leadership: VP of AI/ML Club, Marketing Director for Generative AI Summit – Managed 4 social media with 50+ posts, gained 1000+ followers, sold out tickets 2 weeks before summit, 300+ attendees, 4000+ livestream views from 54 countries

BOSTON COLLEGE

Chestnut Hill, MA

B.A. in Computer Science and Applied Psychology, summa cum laude, Overall GPA:3.94/4.0

Aug 2016 – Dec 2019

- Rank: 4/177, Alpha and Omega Honor Society & First Honors, Dean's List (all semesters)
- Leadership: President of Women in Computer Science, Covid-19 Delivery Team Founder, Campus School Arts Committee Lead
- Research: NLP for Autism – Designed experimentation, annotated 10K utterances, trained predictive models (Feedforward NN, LSTM, CNN) with embeddings (GloVe, word2Vec, BERT) and yielded at least 5% higher accuracy than all previous approaches
- Publications: 2022 International Conference on Computational Linguistics, 2021 ACL & IJCNLP joint conference SRW, 2021 Annual Conference of the International Society for Autism Research

TECHNICAL SKILLS

- Python, Julia, R, Spark, Java, JavaScript, HTML, d3.js, SQL, DAX, Tableau, Power BI, Databricks, Azure, Gurobi, Dataiku

EXPERIENCE

MIT / CMA CGM

Cambridge, MA

Capstone Project, Analyzing Shipping Contract Price Anomalies and Price Elasticity

Spring/Summer 2023

- Implemented production-level outlier detection system, capable of analyzing 4M+ customer rates weekly (Python, Spark, SQL)
- Utilized 6M booking & contract data with ML models (Random Forest, XGBoost) to recommend pricing; annual saving of \$500k
- Customized price elasticity algorithm with confidence intervals to optimize trade team's rate decisions (Clustering, Regression)

MIT / AB INBEV (ABI)

Cambridge, MA

Team Member, Reducing Bias in Sampling Process, Real World Experimentation

Fall 2022

- Handled 1K experiment and 400K store data in Azure Synapse, applied interpretable clustering with K-means and Optimal Classification Tree to cluster stores with 25+ engineered features to identify key features (Julia, Python, PySpark, SQL)
- Proposed evaluation metrics for sample selection bias and applied Propensity Score Matching to systematically generate test/control groups based on business constraints in Databricks (Python, PySpark, R)
- Achieved a 40% increase in conclusive experiments and a mean bias reduction of 89% across all experimentations

MIT SLOAN / MIT OPERATIONS RESEARCH CENTER / LIBERTY MUTUAL

Cambridge, MA

Research Assistant for Prof. Georgia Perakis (Time Series & Deep Learning)

Fall 2022

- Built models (LSTM, decision tree, SARIMAX) to forecast used car replacement costs (Python)
- Leveraged macroeconomic indicators to build assemble models, reduced MAPE by 15% with exogenous variables

ERNST & YOUNG (EY)

Boston, MA

Data & AI Senior Data Scientist (Promoted from consultant 2022)

Sept 2020 - Sept 2022

- Applied 3 classification and 2 times series models to inventory optimization project for a Global Fortune 50 retail pharmacy, developed simulation code in Databricks, cut run time by 90%, resulted in a \$180M in working capital savings (PySpark, SQL)
- Designed and implemented data re-platform solutions to move event data into Azure Data Lake Storage Gen 2 for accessibility and security, created reports within Azure Synapse and consumed in Power BI for data visualization and real-time insight discovery
- Learning Champion at EY Global: Led a team of 20+, developed internal learning roadmaps and training program for the EY Data & Analytics global team of 1000+ people, in collaboration with Microsoft and Databricks
- Organized 50+ internal networking events, continuing education workshops, and client and project pursuits

ADDITIONAL INFORMATION

- Certificates: Azure Fundamentals, Azure Data Fundamentals, Azure AI Fundamentals
- Patent (in China): Mobile Application for Attention Training UI Design 2019
- Languages: Chinese Mandarin (native), Spanish (basic)
- Interests: Founder of TRACKS acappella, struggling skier, life-long piano & chess player, former police cadet