

MICHAEL LIU

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EDUCATION

The University of Chicago

Chicago, IL

Master of Science in Analytics

Sep. 2018 – Mar. 2020

- **Relevant Coursework:** Machine Learning & Predictive Analytics, Data Mining Principles, Data Engineering and Big Data Platforms, Time Series Analysis, Data Visualization, Bayesian Methods, Statistical Analysis, Deep Learning

The University of Washington

Seattle, WA

Bachelor of Science in Economics, double majored in Psychology

Sep. 2011 – Aug. 2015

- **Relevant Coursework:** Advanced Economics, Econometrics, Computational Finance, Multivariate Statistics
- **Leadership:** Student Senator, Vice President of Chinese Student and Scholar Association
- GMAT: 750, GRE: 332, Dean's List, Alberta Corkery Scholarship Recipient, Member of Psi Chi Honor Society

PROFESSIONAL EXPERIENCE

Uptake Technologies

Chicago, IL

Data Science Intern

Jun. 2019 – Sep. 2019

- Improved wind turbine failure prediction model with exhaustive feature engineering and massive adaptive hyperparameter optimization; increased model precision and failure catch rate to 98%; helped clients avoid repairing and maintenance cost as much as \$21,800 per week per wind farm
- Explored ways to create new features with third party data sources and research from SME in order to reduce model RMSE by 9%; the resulting benchmark model for wind turbine efficiency is unrivaled in the current market
- Streamlined recurring data engineering tasks by developing a proprietary R package; it accelerates reading and parsing large amount of signal data from Cassandra server; reduced recurring coding time by at least 20% for the entire DS team
- Spearheaded data assessment project for a thermal energy client; successfully converted prospect to a pilot deal

Dazhong Capital Private Equity Investment Co.

Shanghai, China

Quantitative Financial Analyst in Venture Capital Department

Sep. 2015 – Jun. 2018

- Initiated a project to accelerate an online skill-share platform start-up that is currently scheduled for IPO, expecting 60%-70% return on investment; recognized by management for unique foresight and can-do attitude
- Pinpointed potential opportunities through data-driven market research; modeled NPV and IRR for investment projects; distilled information useful for accelerating the growth of investment projects
- Communicated directly with clients about the implementation of business strategy and funding allocation

Industrial and Commercial Bank of China

Beijing, China

Quantitative Analyst Intern in Global Market Department

May 2014 – Aug. 2014

- Assisted the proprietary trading team by providing research; practiced equity, derivative and forex trading on the in-house mock trading platform; learned and prepared for quant trading from experienced quants and workshops
- Redesigned a trading strategy algorithm, and shortened its process time by 33%; recognized for the ability to turn it around and finalize on time; acknowledged by supervisors for analytical problem-solving skill

PricewaterhouseCoopers

Seattle, WA

Summer Intern in Advisory Department

Jun. 2012 – Sep. 2012

- Conducted strategic business analysis; won first place in case competition for a 15% increase in customer conversion rate

DATA SCIENCE PROJECTS

DonorsChoose.org Marketing Recommender System

Chicago, IL

Team Leader, Big Data Final Project

Jan. 2019 – Mar. 2019

- Stored over 3 GB of structured donation and donor data into an on-premise Hadoop file system for distributed computing
- Uncovered insights from data using Hive queries; trained a classifier to identify potential donors using PySpark ML tool
- Helped DonorsChoose.org build recommender system to send emails that motivate donors, using data science for good

Airbnb Listing Strategic Pricing Analysis

Chicago, IL

Team Leader, Data Mining Final Project

Oct. 2018 – Dec. 2018

- Gathered data with over 200,000 rows from Airbnb using JSON API; designed and engineered an OLAP database in MySQL for analytics and storage; utilized snowflake schema to successfully cut query time in half
- Identified significant factors that affect listing pricing; identified market segments with DBSCAN clustering technique
- Built a linear regression model in R that predicts price from continuous and categorical features; Achieved 84% R^2
- Established a new way to strategically price Airbnb listings that would greatly improve booking rate and lower vacancy

Mutual Fund Time Series Forecasting and Portfolio Optimization

Seattle, WA

Team Leader, DubHacks Datathon Participant

Aug. 2015

- Built CER models and SARIMAX models in R for 6 selected mutual funds; conducted rolling analysis on model stability
- Optimized mock portfolio to outperform benchmarks, and led UWFE club team to top 5 ranking in datathon

SKILLS

- **Technical:** Python (pandas, NumPy, Scikit-learn, matplotlib), R, SQL, Tableau, Hadoop, Spark, Hive, Git, unit testing
- **Machine Learning Algorithms:** Generalized linear models, Lasso and Ridge regression, SVM, Bagging & boosting (Random forests, Gradient Boosting), Clustering (K-means, DBSCAN), NLP, Neural Net, recommender system