Zhenlei Deng

Phone: 415-290-2459 | Email: dengzhenleih@gmail.com

EDUCATION

The University of Michigan, Ann Arbor   **Ann Arbor, USA**

MSE in Industrial & Operations Engineering(Data Science Track) GPA:4.0   **Jan 2021 – Dec 2022**

COURSEWORK: Continuous Optimization Methods, Financial Engineering, Stochastic Process, Machine Learning, Simulation Analysis, Data Analytics, Algorithms, Time Series Analysis, Data Manipulation & Analysis

The University of California, Santa Barbara   **Santa Barbara, USA**

BS in Mathematical Science, BA in Economics & Accounting (Dual Degrees) GPA:3.52   **Sep 2016 – Jun 2020**

COURSEWORK: Real Analysis, Advanced Numerical Analysis, Operations Research, Linear Algebra, Probability and Statistics, Managerial Accounting, Auditing, Business Analysis, Intermediate Accounting, Micro & Macro Economics

INTERNSHIP

Huatai Securities Co., Ltd   **Shanghai, China**

OTC Derivatives Trader Intern (Summer Program)   **Aug 2021 – Sep 2021**

- Conducted a key project on dynamically hedging the BCOMPR subindex of Bloomberg Commodity Index, using the 20-year data to construct a gold and silver futures hedging strategy by tracking the profit and loss

Ernst & Young   **Shanghai, China**

Business Consulting Intern (Financial Service)   **Feb 2021 – May 2021**

- Participated in the AML risk rating project of a giant insurance company, quantified and evaluated its inherent risks, operating effectiveness, and residual risks, collected corresponding rating documents, and finalize the rating report
- Participated in the AML consulting project of a multi-national insurance company, assessing the frameworks of internal control and optimizing the customer and business risk rating models

Guotai Junan Securities Co., Ltd   **Shanghai, China**

Quantitative Research Intern (Equity Derivatives Solution)   **Aug 2020 – Nov 2020**

- Conducted a key project concerning shark fin option prices, observed and calculated the shark fin option prices, computed the delta, and analyzed the dynamic hedge profits and losses of the option based on the delta
- Finished research about Mountain Range Options, performed intermittent observation of the stocks in the basket, calculated the options returns by incorporating each stock's maximum return rate in the basket on each observation day
- Completed a 40-page research report about total return swap and over-the-counter derivative markets based on the data of the Securities Association of China
- Handled daily tasks with project managers, doing due diligence, and using Wind to collect and analyze data

UNIVERSITY PROJECT

Time Series Analysis on Nasdaq-100 Index   **Ann Arbor, USA**

Group Leader   **Jan 2022 – Apr 2022**

- Implemented ARMA(4, 5), GARCH(1, 2), and Partially Observable Markov Process (POMP) to model and analyze the Nasdaq 100 index over the past five years
- Compared the performance of ARMA, GARCH, and POMP models by completing AIC and MLE analysis, and concluded the POMP model is optimal.

Credit Card Approval Prediction   **Ann Arbor, USA**

Group Leader   **Jan 2022 – Apr 2022**

- Completed the data cleaning of a bank's credit card application and credit records, and used methods such as re-sampling and SMOTE to solve the long-tailed learning
- Implemented SVM, LDA, QDA, CatBoost, K-Means, and KNN for classifying and clustering the high and low risk clients and concluded that CatBoost performs best

Walmart Sales Time Series Forecast   **Ann Arbor, USA**

Group Member   **Nov 2021 – Dec 2021**

- Conducted exploratory data analysis and feature engineering before applying various machine learning methods
- Implemented LSTM, LightGBM, DNN, Catboost, and regression and applied the Optuna optimization to make predictions of Walmart's sales revenue, and analyzed the performance of each model and concluded LightGBM and DNN perform best

DTW Airport Traffic Simulation and Optimization   **Ann Arbor, USA**

Group Member   **Aug 2021 – Jun 2021**

- Modeled and validated the inflow and outflow of airplanes at DTW and constructed alternatives of the number of runways by collecting the daily arrival/departure data
- Studied the influence of air traffic flow, and concluded that the current system could suffer from air traffic blocks as the number of flights surge after the pandemic

SKILLS & EXTRACURRICULAR

- Skills: Python, R, SQL, MATLAB, Java, C++, Spark, Tableau, Pytorch, Scikit-Learn, TensorFlow, Statistical Analysis, Financial Modeling, Data Analysis, Machine Learning, Deep Learning