Juan (Jessie) Du

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Detail-oriented team player with strong organizational skills. Ability to leveraging advanced analytics and programming skills to solve complex data-driven problems and drive business insights

EDUCATION

Brandeis International Business School — **Waltham, MA**
Master of Science in Business Analytics (STEM-Designated) — 08/2021 - 12/2022
Graduating with Distinction – GPA: 4.0 / 4.0

Beijing Technology and Business University — **Beijing, China**
Bachelor of Management in Logistics Management — 09/2015 - 06/2019
Excellent Graduate – GPA: 4.3 / 5.0

SKILLS

Data Modeling: Machine Learning Algorithms, Deep Neural Network, Data Warehousing, Predictive Analysis, Troubleshooting
Program Language and Computer Software: Python, MySQL, R, Tableau, Advanced Microsoft Excel

EXPERIENCE

Quantitative Researcher — 06/2022---08/2022
State Street Global Advisor (Brandeis Field Project) — Waltham, USA

- Conducted quantitative research and analyzed rolling correlation between each pair of stock indexes using Python, producing data visualizations and actionable insights to inform investment decisions.
- Developed univariate and multivariate rolling regression models with and without regularization to predict sector returns and tested two different time lengths for forecasting.
- Constructed 1-month and 3-month portfolios using three weighting schemes and backtested the portfolio performance using multiple metrics.
- Manually built a classification tree algorithm to predict sector return movements and proposed innovative solutions to incorporate the Gini impurity into portfolio construction, resulting in a portfolio that outperformed the benchmark by 300%.
- Facilitated weekly team meetings and delivered progress reports to senior members, promoting a collaborative and transparent team culture.

Graduate Teaching Assistant — 08/2022---12/2022
Brandeis International Business School — Waltham, MA

- Designed in-class exercises and provided personalized feedback and guidance to help students understand complex SQL queries and course material.
- Mentored students through office hours and one-on-one communication to help them build their technical and analytical skills, emphasizing real-world applications and best practices in data analysis.
- Maintained accurate attendance and student records using Excel to ensure compliance with university policies and support effective communication with faculty.

ACADEMIC PROJECTS — VIEW PROJECT DETAILS

House Price Visualization | Tableau, R (ggplot)

- Combined data from multiple sources and preprocessed it using Tableau Prep to create a comprehensive dataset.
- Formulated hypotheses about the relationship between house supply, house price, and selected features, and visualized these relationships using Tableau Desktop and R's ggplot package.
- Conducted explanatory analysis based on the visualizations and gained insights into factors affecting house prices, such as location and property type.

House Price Prediction | Python – Selenium, Pandas, Matplotlib

- Scraped house price data from Airbnb using Selenium, selected relevant features using regular expression, and converted categorical data to numerical format using one-hot encoding.
- Built three regression models - linear, ridge, and lasso - to predict house prices and evaluated their performance using metrics such as RMSE and R-squared.
- Visualized the results using Matplotlib and presented key findings, highlighting the effectiveness of the lasso regularization method in reducing model complexity and improving prediction accuracy.

Estimating VaR of Stock Price Index (CSI300) | Financial Risk Assessment, Python – Sklearn, Keras

- Conducted risk assessment by estimating the Value at Risk (VaR) of the CSI300 stock price index.
- Utilized conventional models (MA, EWMA, and GARCH) and machine learning algorithms (Regression with Ridge/Lasso penalty, Random Forest, Gradient Boosting Regression, and Recurrent Neural Network) to estimate VaR through modeling the volatility of stock returns and predicting daily stock return loss.

Landscape Image Colorization | Python – Pytorch, Convolutional Neural Network

- Developed U-Net and DCGAN models for colorization of landscape images following existing research.
- Conducted rigorous testing and modified loss function and network structure to solve non-convergence issues, particularly with the DCGAN model.