

# Juan (Jessie) Du

📍 Waltham, MA

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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 - Academic Excellence Award

Waltham, MA

Master of Science in Business Analytics (STEM-Designated) - GPA: 4.0

08/2021 - 12/2022

### Beijing Technology and Business University - Excellent Graduate

Beijing, China

Bachelor of Management in Logistics Management - GPA: 3.90

09/2015 - 06/2019

## 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

- Analyzed the rolling correlation between each pair of stock indexes, created data visualizations using Python, and conducted research to provide explanations and insights.
- Built univariate and multivariate rolling regression models with and without regularization to predict sector return and tested two different time lengths used for forecasting.
- Constructed 1-month and 3-month portfolios using three weighting schemes and created python functions to backtest the portfolio performance using multiple measurements.
- Manually built classification tree algorithm to predict sector return movement and to proposed innovative solutions to incorporate the Gini impurity into portfolio construction.
- Facilitated weekly team meetings and delivered progress report to the senior members for review and discussion.

### Graduate Teaching Assistant

08/2022 - 12/2022

#### Brandeis International Business School

Waltham, MA

- Designed in-class exercises, checked assignments, proctored tests, and provided feedback and personalized guidance.
- Mentored students through office hours and one-on-one communication.
- Taught small groups of students focused on understanding the course material and working on complex SQL queries.
- Documented attendance and completed assignments to maintain full class and student records using Excel.

## ACADEMIC PROJECTS

[VIEW PROJECT DETAILS](#)

### House Price Visualization | Tableau, R (ggplot)

- Merged data from multiple sources and preprocessed data using Tableau Prep.
- Formulated hypothesis about house supply and house price with respect to selected features and created visualizations using Tableau Desktop and ggplot in R.
- Performed explanatory analysis based on the visualizations and delivered weekly report.

### House Price Prediction | Python – Selenium, Pandas, Matplotlib

- Scraped data from Airbnb, selected relevant features using regular expression, and converted categorical data using one-hot encoding.
- Conducted Training-Validation-Test split and imputed missing values using PCA and KNN.
- Built three regression models to predict house price and compared the effectiveness of different regularization methods.

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

- Estimated VaR by modeling the volatility of stock return using conventional MA, EWMA, and GARCH(1,1) model, with the optimal parameter estimated using maximum likelihood estimation.
- Estimated VaR by predicting the daily loss of stock return using four Machine Learning algorithms, including Regression with Ridge/Lasso penalty, Random Forest, Gradient Boosting Regression, and Recurrent Neural Network.

### Landscape Image Colorization | Python – Pytorch, Convolutional Neural Network

- Built U-Net model and DCGAN model following the instructions of the previous research.
- Repeatedly tested model performance, especially for DCGAN, modified loss function and network structure to solve the non-convergence problem.