# Jiayang Nie

jnie@berkeley.edu | Berkeley, California | 6264281707

## EDUCATION

**University of California, Berkeley** Expected December 2022
Master in Statistics; GPA 4.00; Linear Modelling, Statistical Inference, Advanced Probability, Experimental Design

**University of California, Berkeley** May 2021
Bachelor in Statistics; Minor in Mathematics; GPA 3.97; Graduated with the Highest Distinction
Courses: Stochastic Process, Game Theory, Bayesian Inference, Data Structure, Time Series, Real Analysis, Linear Algebra

## WORK EXPERIENCE

**Guotai Junan Securities** May 2021 – Jul 2021; Dec 2019 – Sep 2020
***Research Intern, Machine Learning*** Remote & Shanghai, China

- Applied Machine Learning on stock dataset to extract signals and designed algorithms to profit by trading on signals.
- Cleaned 151 Mb raw csv data, design features and coded a systematic algorithm to obtain signals to maximize correlation with price change, such correlation coefficient reached around 50% with XGBoost model.
- Achieved 10% 4-month return in tested sample in ETF through developing an algorithm to process the signal collected.
- Improved the speed for searching optimal parameters by over 50% through rewriting algorithms in Numba package.
- Optimized the cost function of a genetic algorithm method to include rank correlation and information ratio and yield 100% profit return in training set after applying the modified genetic algorithm.

**Tencent** Jun 2019 – Sep 2019
***Computer Vision Research Intern, Face Recognition*** Shanghai, China

- Researched on the architecture of Neural Network and applied to detect facial log-in attacks like using a picture to log in.
- Improved the original classification framework by reapplying ResNet through pyTorch and trained on GPU through Cuda.

**Ant Group, Alibaba** Jul 2018 – Oct 2018
***Data Analyst Intern, Default Detection and Credit Rank*** Shanghai, China

- Improved a GBDT model precision rate by 50% with a fixed 80% recall rate for predicting bond-default possibility with a creative filtering method for the training set data; team named this filtering method after my name.
- Customized a data pipeline to add an important feature into a GBDT model through Alibaba's cloud computing platform, accuracy for the output reached more than 97 percent.

## PUBLICATION

Jiayang Nie, Xiao Qiao, Sibo Yan (2020). *COVID-19 Effects on Intraday Stock Market Behavior.* In Sabri Boubaker, Duc Nguyen (Eds.). Financial Transformations beyond the Covid-19 Health Crisis. World Scientific Publishing. (In the process of printing)

## PROJECTS

**Experimentation Under Interference** Jan 2022 – Present

- Researched on different experimentation techniques, the ATE estimator and variance under SUTVA assumption.
- Conducted literature review on estimation tools when SUTVA fails and each unit interference with each other.
- Filled a minor gap for the result of Aronow and Samii (2017) under misspecification cases with simulation study.

**Airbnb Demand Forecasting** Jan 2022 – Present

- Defined the demand metrics for Airbnb data, web scrapped features and reduced dimensions for NLP features
- Tested dataset on XGBoost, Ridge regression and Poisson Regression to predict demand for Airbnb hosts.
- Invented a price model by SHAP and demand elasticity to set an optimal price for Airbnb hosts to maximize their revenue.

**Analysis of Covid-19's Impact on Intraday Stock Market** Jan 2019 – Oct 2020
Supervisor: Dr. Sibo Yan, University of California, Los Angeles

- Measured the speed of change of stock market volatility through applying a model hypothesized in a top-edge research paper in R by Generalized Method of Moments.
- Improved the model-fit converge rate from 50% to 70% by smoothing and pooling the time-series data.
- Confirmed and solidified with evidence of a correlation between stock price change in the 1$^{st}$ and the 13$^{th}$ half-hour in a trading day, crucial findings for both research purpose and business use.

## SKILLS

- **Programming Tools**: Python(excellent), R(excellent), SQL(proficient), Java(proficient), Pandas, Pytorch, sk-learn, seaborn
- **Analysis Skills**: Linear Models, Experimental Design, Gradient Boosting, Bayes Hieratical Models, Neural Networks