

# Jiayang Nie

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## EDUCATION

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University of California, Berkeley

Dec 2022

Master in Statistics; GPA 4.00

Courses: *Linear Modelling, Statistical Inference, Advanced Probability, Deep Learning, Causal Inference, Experimental Design*

University of California, Berkeley

May 2021

Bachelor in Statistics; Minor in Mathematics; GPA 3.97; **Graduated with the Highest Distinction**

Courses: *Time Series, Linear Algebra, Stochastic Process, Game Theory, Bayesian Inference, Data Structure, Real Analysis*

## SKILLS

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**Programming:** Python, R, SQL, Java, PySpark, Databrick, Git, Pandas, Pytorch, Sklearn, Seaborn

**Modelling:** AB-Testings, Ensembles, Clusterings, Linear Models, Bayesian Models, CNN, RNN, Transformer, Collaborative Filtering

## WORK EXPERIENCE

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**Vizio** Jun 2022 – Aug 2022

*Machine Learning Engineer Intern, AdsTech* San Francisco

Enhanced smart TV ads targeting by detecting user engagement behaviors (what games they are playing and how long they played).

- Architected an ML structure of running XGBT on the nearest neighbors' distances retrieved from Approximate Nearest Neighbor model to classify the games played by users on Vizio's smart TV with the audio fingerprints collected from user end.
- Customized a Transformer to classify games from sessions of audio fingerprints, trained a k-means cluster on the max-pool layer output, and transformed raw data to histogram-valued data for session segmentation by chi-square distance with 90% recall rate.
- Aggregated the Transformer and ANN as two parallel layers to smooth the decision boundary, augmented training data by uniform noise and improved the model latency to be capable of processing 2.5-minute streaming data per second per GPU.

**Guotai Junan Securities**

May 2021 – Jul 2021 & Dec 2019 – Sep 2020

*Quantitative Researcher Intern, ML*

Remote & Shanghai, China

Designed algorithms and regression models on stock panel data to extract and process signals to profit through high-frequency trading.

- Applied models with cross-validation to obtain signals that maximize correlation with stock price change, such correlation coefficient reached around 50% with hypertuned XGBT model.
- Developed high frequency trading algorithm based on the signals retrieved from order book with back test showing a steady 5% return on a scale of 60 million fund for 2-month period; Naïve version of the algorithm already running on day trading machine.

**Tencent**

Jun 2019 – Aug 2019

*Computer Vision Researcher Intern, Image Processing*

Shanghai, China

Researched on deep learning models to defend against facial recognition spoofing attacks for payment system at WeChat Pay.

- Adapted and tuned ResNet to classify facial login photos into categories of real human or fake attacks to protect payment system.
- Experimented on different approaches to obtain signals from real human that cannot be faked from photos or videos to add as extra procedures before user's login to payment system.

**Ant Group, Alibaba**

Jul 2018 – Oct 2018

*Data Analyst Intern, Default Detection*

Shanghai, China

Engineered data pipelines to collect features and enhanced the modelling task of predicting bond default probability of public firms.

- Originated a filtering method for the dataset that improved a GBDT model precision rate by 50% with a fixed 80% recall rate for predicting bond-default possibility; team named this filtering method after my name.

## PROJECTS

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**Click-Through Rate Prediction**

*Kaggle Data Challenge*

- Researched on the state-of-the-art models that predict CTR of ads impressions to recommend ranked customized ads to users.
- Applied GBDT+LR and Deep & Wide Factorization Machine model to dataset in Spark, reaching 30% recall and 40% precision.

**Experimentation Under Social Network Interference**

*Graduate Research*

- Researched on the solutions for measuring average treatment effects for experiments under social network spillover effect.
- Filled a minor gap for Aronow and Samii (2017)'s paper about the estimators' ill-conditioned performance with simulation study.

**Airbnb Demand Forecasting**

*Capstone Project*

- Led a team at UC Berkeley to analyze Airbnb listings' demand and revenue in Los Angeles areas on Databrick with MLs.
- Trained a price model with sentiment analysis to give suggestions to Airbnb hosts to maximize their return-on-investment.
- Made informative advice to Airbnb hosts in terms of where to rent out, what to rent out and how to optimize description.

## PUBLICATION

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Jiayang Nie, Xiao Qiao, Sibio 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. (Published in 2022)