

**YUAN (ALEX) CHENG**  
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## EDUCATION

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**NEW YORK UNIVERSITY** New York, NY

**The Courant Institute of Mathematical Sciences**

**M.S. in Mathematics in Finance** (Sept. 2018 – Dec. 2019)

- *Courses:* Stochastic Calculus, Time Series Analysis, Mathematical Statistics, Machine Learning

**UNIVERSITY OF CHINESE ACADEMY OF SCIENCES**

Beijing, China

**B.S. in Mathematics and Applied Mathematics** (Sept. 2014 – June 2018)

- *Awards:* National Scholarship (for top 1), Honorable Mention in Probability and Statistics of S.-T. Yau College Students Mathematics Contest, 2<sup>nd</sup> Prize in Chinese Mathematics Competitions

**COLUMBIA UNIVERSITY**

New York, NY

**Fu Foundation School of Engineering and Applied Science** (Sept. 2017 – Dec. 2017)

## EXPERIENCE

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**HIFI, RCRDCLUB CORPORATION**

New York, NY

*Financial Engineer Intern* (June 2019 – August 2019)

- Employed Generative Adversarial Nets (GAN) to augment dataset of musicians' income by generating synthetic time series data
- Trained LSTM, GRU, simple RNN on the synthetic dataset and tested over real samples; improved accuracy by up to 38% compared to without augmentation
- Implemented Minimum Trace reconciliation (MinT) for hierarchical time series forecast in Python
- Applied Gaussian Process Regression, Seasonal ARIMA to forecast musicians' income for next year; reconciled the forecasts by MinT; achieved prediction accuracy of up to 97%

**HYPERPLANE ASSET MANAGEMENT CORPORATION LTD**

Beijing, China

*Alpha Researcher* (May 2018 – June 2018)

- Constructed Alpha factors in Chinese equity market by statistical techniques; implemented Alpha factors by translating the ideas in academic papers into quantified signals in Python
- Improved the performance of existing Alpha factors based on prediction of stock price movement by utilizing SVM and Random Forest

*Quantitative Trading Strategy Intern* (June 2018 – July 2018)

- Applied Random Matrix theory, Hierarchical Clustering to clean/denoise Empirical Correlation Matrix (ECM) of stock returns; increased Sharpe Ratio by 10% by utilizing the cleaned ECM to build Markowitz portfolio
- Developed trading strategies based on eigenvectors of the cleaned ECM; conducted back-testing and analyzed annualized return, Sharpe ratio and maximum drawdown

**AMSS, CHINESE ACADEMY OF SCIENCES**

Beijing, China

*Research Assistant* (May 2016 – May 2017)

- Improved GAN-CLS algorithm by modifying the objective; implemented it with conditional GAN over Oxford-102 flower dataset to generate images based on input text descriptions
- Implemented a recurrent GAN to impute missing data for multivariate time series with non-fixed time lags; evaluated the model on KDD CUP 2018 Dataset (a public air quality dataset) and achieved an imputation accuracy of around 0.8 (calculated as MSE)

## PROJECTS

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*Options Pricing in Python*

- Priced European, Asian options by Heston model with Euler discretization
- Employed antithetic variates, control variates and importance sampling to reduce variance
- Priced American options by least square Monte Carlo; evaluated boundary of early exercising

## COMPUTER SKILLS/OTHER

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*Programming Languages:* Python, TensorFlow, Keras, R, Java

*Languages:* Mandarin (native), English (fluent)