# Yangfan CUI

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## EDUCATION

**NC STATE UNIVERSITY** — Raleigh, NC
Ph.D. in Mathematics — 08/2021 - Present

**NEW YORK UNIVERSITY** — Brooklyn, NY
Master of Science in Financial Engineering — 09/2017 – 05/2019

## TECHNICAL SKILLS

- **Skills:** Python, R, JavaScript, HTML, CSS, MySQL, C++, Matlab
- **Algorithm:** Logistic Regression, Q-Learning, Support Vector Machine, Decision Tree, XGBoost, Neural Network, LSTM

## COURSEWORK HIGHLIGHTS

Machine Learning, Reinforcement Learning, Data Analysis, Time Series Analysis, Linear Statistical Models

## EXPERIENCE

**CHINA EUROPE INTERNATIONAL BUSSINESS SCHOOL** — Shanghai, CN
*Research Assistant* — 09/2020 – Present

- Contributed to multi-disciplinary projects by writing algorithms to create record links across different data sources.
- Built up several applications for teaching support, for instance, the efficient frontier virtualization app, the investment results simulation app, etc.
- Conducted literature reviews, collected data and did data cleaning as well as data analysis.

**BUTTONWOOD NETWORK** — New York, NY
*Data Analyst* — 08/2019 – 07/2020

- Crawling information of venture capitals and entrepreneurs such as industrial verticals and round size.
- Applied NLP algorithms like BERT, LSTM to build a text filter and a text hierarchical clustering so that different investors and entrepreneurs could be listed with similar semantic industrial verticals.

## RESEARCH / ACADEMIC PROJECTS

**XIAN JIAOTONG-LIVERPOOL UNIVERSITY** — Suzhou, China
*Pricing Temperature-based Weather Derivatives in China* — 09/2016 – 05/2017

- Collected open data of five cities' temperature in China
- Applied time series models to capture the seasonality and volatility of temperature series
- Priced temperature-based put and call options with the Monte Carlo Simulation based on the temperature forecasted by selected time series models.

**NEW YORK UNIVERSITY** — Brooklyn, NY
*Applying the machine learning to predict a mid-price at a given time.* — 02/2018 – 04/2018

- Conducted 6 different methods including SVM, Neutral Network, logistic regression, etc., to predict.
- Used rolling windows technique to predict 0.5, 1, 5, 10, 30 seconds forward.
- Made long or short decision based on predicted mid-price then compared with the actual price to calculate return.
- Evaluated each method by measuring their performance.

**NEW YORK UNIVERSITY** — Brooklyn, NY
*Reinforcement Learning for Trading VIX ETNs*. — 12/2018 – 05/2019

- Deduced the relationship between returns of ETNs and VIX futures contracts.
- Applied Vector AR model to reconstruct constant maturity futures and roll yields.
- Constructed a reinforcement learning environment by determining states, rewards and actions.
- Used Q-Learning algorithm to find the optimal strategy (action) given each market roll yield.

## HONORS

- **Scholarship**, NYU Tandon school of Engineering, 2017-2018, 2018-2019
- **Progression Scholarship – University Academic Achievement Award**, Xi'an Jiaotong-Liverpool University, 2016-2017, 2015-2016
- **Mathematical Contest in Modelling**, "Honorable Mention" prize, 2016
- **National Encourage Scholarship**, 2015-2016