CHENYU (MONICA) WANG

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EDUCATION BACKGROUND

Tsinghua University **Beijing, China**

Bachelor of Economics and Finance Sep. 2018-Jun. 2022

- **High School Awards: Gold medalist of 50th International Chemistry Olympiad (4 in China)**; First prize of National High School Mathematics League; Silver medalist of 15th China Girl's Mathematical Olympiad
- **GPA: 3.99/4.0 (Ranking: 1/248); GPA for major courses: 4.0/4.0**
- **Honors:** National Scholarship for Undergraduate Students (1%); Tang Lixin Scholarship
- **Courses:** Time Series Analysis(**A+**), Multivariate Statistical Analysis(**A+**), Financial Economics(**A**), Calculus(**A**), Statistical Learning(**A**), Convex Optimization(**A+**), Stochastic Calculus(**A**), Ordinary Differential Equation(**A+**)

Minor in Data Science and Technology Jun. 2019-Jun. 2022

- **GPA: 3.96/4.0 | Courses:** Data Structure(**A+**), Deep Learning(**A+**), Database(**A+**), Artificial Intelligence(**A**)
- **Technical:** Proficient in Python/C++/R/Matlab. Machine learning models: SVM, RF, k-Means etc., deep learning algorithms including CNN, RNN etc., deep learning framework: PyTorch, Tensorflow; Basic knowledge of SQL and Linux

University of California, Berkeley **Berkeley, CA**

Exchange student, department of statistics (Led by Noureddine El Karoui, remote) Jan. 2021-Jun. 2021

- **Courses:** Modern Statistical Prediction and Machine Learning (**A+**, top 1%)

PUBLICATIONS & PREPRINTS

Tree-Based Neural Bandits for High-Value Protein Design

***Chenyu Wang**, Joseph Kim, Le Cong, Mengdi Wang*, under review of *AISTATS 2022*

HAGEN: Homophily-Aware Graph Convolutional Recurrent Network for Crime Forecasting [link]

***Chenyu Wang**, Zongyu Lin, Xiaochen Yang, Mingxuan Yue, Jiao Sun, Cyrus Shahabi*, under review of *AAAI 2022*

Open Domain Generalization with Domain-Augmented Meta-Learning [link]

*Yang Shu, Zhangjie Cao, **Chenyu Wang**, Jianmin Wang, Mingsheng Long*, *CVPR 2021*

RESEARCH EXPERIENCE

Tree-Based Neural Bandits for High-Value Protein Design **Princeton, NJ**

Advised by Prof. Mengdi Wang, Department of Electrical Engineering, Princeton University Jun. 2021-present

- Completed a paper under review of *AISTATS 2022* as the first author. Proposed the tree-based neural bandits algorithm, which finds a rich class of high fitness proteins using substantially fewer design queries on two public protein fitness datasets.
- Modelled protein design as a contextual bandit problem and utilizes a modified upper-confidence bound algorithm as guided by the neural bandit and a Monte Carlo tree search process for accelerating the search for optimal designs.
- Analyzed model convergence rate based on global search space ranking, fitness distribution shift and search trajectory.

Homophily-Aware Graph Convolutional Recurrent Network for Crime Forecasting **Los Angeles, CA**

Advised by Prof. Cyrus Shahabi, Department of Computer Science, USC Jan. 2021-Jun. 2021

- Completed a paper under review of *AAAI 2022* as the first author. Proposed homophily-aware graph convolutional recurrent network HAGEN for crime forecasting, which consistently outperformed SOTA on two datasets by up to 8%.
- Utilized adaptively learned graph structure to capture the underlying high-order relationship between regions and incorporates direction-aware diffusion convolution layer with GRU framework to learn spatiotemporal dynamics
- Constrained the graph structure with a designed homophily-aware loss to enhance the performance of the graph neural network

Open Domain Generalization with Domain-Augmented Meta-Learning **Beijing, China**

Advised by Prof. Mingsheng Long, School of Software, Tsinghua University Sept. 2020-Nov. 2020

- Completed a paper accepted by *CVPR 2021* as the third author. Conducted research on open domain generalization.
- Utilized different ensemble model based criteria, including entropy, consistency and cosine distance from class center to

conduct outlier label recognition. Introduced clustering loss into loss function to facilitate open-set recognition.

- Evaluated model performance with metrics including H-score and class average accuracy to guide parameter grid search.

Understanding Chinese Bond Yield Curve: Excess Return Prediction **Beijing, China**

Advised by Prof. Hao Wang, SEM, Tsinghua Jun. 2020-Aug. 2020

- Modelled bond excess return in Chinese market. Wrote one chapter in the manuscript for a book to be published.
- Constructed predictors for long term bond's excess return. Conducted model comparison with sub-sample test and out of sample estimation. Gained supportive evidence that Chinese bond market has shorter market cycle and higher fluctuation.
- Constructed dynamic investment strategies. Achieved 4 times Sharpe ratio improvement and stable sub-period performance.

WORK EXPERIENCE

Jane Street Asia Limited **Hong Kong**

Quantitative Trading Intern Jun. 2021-Sept. 2021

- Conducted data processing and analysis, model construction and trading simulation in two research projects on Chinese and Australian stock market. Produced predictive models for future market returns in both projects.
- Developed and executed strategies for a variety of simulated trading exercises by observing market events under time pressure

WizardQuant Capital Management **Zhuhai, China**

Quantitative Researcher, Quantitative Research Department Jun. 2020-Aug. 2020

- Built an alternative risk model based on data of equity research reports. Made supplement to Barra model factors.
- Conducted comprehensive EDA, built models including similarity matrix constructing, affinity propagation clustering and daily updating with rolling window data. Such grouping model captured industrial chain characteristics.
- Completed data filtering and graph merging with the data. Achieved intragroup Barra residual correlation up to 0.3.

Techsharpe Quant Capital Management **Beijing, China**

Data Analyst Intern, Trading Department Jan. 2020-Feb. 2020

- Conducted research on futures rolling strategies of CSI500 index future and analyzed the advantage of rolling by open interest.
- Optimized trading system with Python to summarize daily transaction information and calculate profits.

LEADERSHIP & ACTIVITIES

Meritorious Winner in 2021 MCM/ICM Mathematical Contest in Modelling **US/China**

Team Leader Feb. 2021

- Performed analysis of on previous music's influence and the pattern of music evolution with network science approaches.
- Constructed both genre-level and artist-level network based on the given data, evaluated artists' influence with Katz centrality and figured out potential revolutionary artists with critical path algorithm.
- Modelled the dynamic pattern of genres and artists, and conducted intervention analysis on Pop/Rock with ARIMA model.

Banking & Investment Mentor Program *(A global student-run non-profit organization with 10-year history)* **US/China**

Co-president Feb. 2021-Feb. 2022

- Organized the global recruitment for Class 2023 (100+ candidates), meet-ups and alumni network update and maintenance
- Selected as the only Tsinghua member in Class 2022 (14 in total globally, membership covering Wharton, Harvard etc.)

Student Union of Tsinghua University School of Economics and Management **Beijing, China**

Director of Department of Sports Mar. 2019-Sept. 2020

- Organized SEM spring training, resulting in 20% higher score in track & field race and 3 consecutive championships.
- Participated in SEM track team as team leader and 4 other teams as core member, spending 10+ hours/week in training; Got top 3 in 10 events of John Ma Cup including 1st place in 4*400m relay, 3rd place in 1500m and women's basketball champion.

SKILLS & INTERESTS

- **Languages:** Mandarin (Native); English (Proficient; TOEFL 110/120: Reading 29, Listening 28, Speaking 26, Writing 27)
- **Interests:** Sports (1st place in 4*400m; member of SEM basketball and soccer team), Chinese Zither (Amateur Certificate 9), Debate (2nd place in Tsinghua Freshmen Debate Competition), Literature (Editor of senior high school magazine)