CONG CHENG

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EDUCATION

Ph.D. in Statistics, University of Georgia 2021 - Present
Areas of Expertise: Change Point Detection, High Dimension Statistics

B.S. in Mathematics, University of Science and Technology of China 2016 – 2020
Honors: Graduation with Highest Distinction, Leadership Scholarship

EXPERIENCE

Quantitative Research Intern May 2023 – Aug 2023
Qilin Investment Management (AUM 30 billion) *Shanghai, China*

- Used high-frequency data (snapshot, order, and trade data) to construct value and momentum factors for China's A-share market.
- Built CNN and TCN models for time series data to predict share returns in 30 minutes by Python and applied the information coefficient (IC) to evaluate model prediction ability.
- Developed feature-selection framework using integrated gradient analysis based on the previous model prediction results.

RESEARCH

Structure Change in High-dimensional Linear Regression Jan 2023 - Present
Advisor: Prof. Yuan Ke *University of Georgia*

- The innovative two-step method in structure changes diagnostic for the regression model.
- The validity and accuracy of the method are verified by using R language simulation data.

Block Cholesky Decomposition and Estimation for Precision Matrix Jan 2022 - Oct 2022
Advisor: Prof. Yuan Ke *University of Georgia*

- Developed an efficient sampling algorithm based on K-means clustering and block Cholesky decomposition for estimating inverse covariance matrix under the sense that the variables can be divided into several groups.
- Conducted both simulation and case studies (breast cancer dataset) to demonstrate the merits of the proposed method.

Dimension Reduction in Change Point Detection Sep 2020 - Jul 2021
Advisor: Prof. Xiao Han *University of Science and Technology of China*

- Proposed new statistics to first reduce data dimension and then detect the change point of the mean in high-dimensional data under the condition of satisfying Gaussian distribution or non-Gaussian, presented a theoretical proof.
- Applied the method to the S&P 500 data to verify the correctness and efficiency of the theory.

SKILLS

- **Programming Languages:** R, Python
- **Certification:** The securities qualification certificate (China), First Price of National High School Mathematics Competition, Second Price of the Chinese Mathematics Competition (University Mathematics Major)