

Education

University of North Carolina at Chapel Hill

M.S. in Statistics, Analytics and Data Science

Chapel Hill, NC

Sep 2024 – 2026

Fudan University

Bachelor in Mathematics and Applied Mathematics

Shanghai, China

Sep 2019 – Jun 2024

Academic Experience

Constrained optimization algorithm development

UNC-CH

Research Assistant

Aug 2024 – Now

- Analyze the complexity of a Sequential Quadratic Programming (SQP) based stochastic optimization algorithm on large-scale nonlinear optimization problems with constraints. Prove convergence guarantees for the algorithm that assigns different stepsizes in tangential and normal search directions.
- Implement stochastic SQP algorithms on PDE-constrained optimization problems, which utilizes Physics-Informed Neural Networks. Achieve better convergence accuracy, speed and stability in both objective and constraints than Adam-based unconstrained algorithms.

Universal parameter-free gradient-based algorithm

UNC-CH

Student

Sep 2024 – Dec 2024

- Course project on the Distance over Weighted Gradient (DoWG) algorithm and edge of stability phenomenon.
- Extend the convergence result of DoWG to stochastic settings by following the proof strategy of DoG algorithm.
- Implement and compare different types of parameter-free methods with baselines.

Dual-class stock price analysis

Fudan University

Research Intern

Aug 2023 – Jan 2024

- Collect repurchase data and relevant regulations from websites by web crawling with Python. Test the relationship between repurchase plans and the price difference for dual-class shares.
- Propose a new definition of Repurchase Intensity based on the total monthly trading volume. Explore the relationship between stock prices of dual-class companies and examine the effect of illiquidity on dual-class share prices.

Senior thesis

Fudan University

Author

Jan 2023 – Jun 2023

- Review on several types of unit-root tests including DF test, ADF test, and KPSS test.
- Implement unit-root tests with change points on China's macroeconomic data and future markets.

Project Experience

Tree canopy detection and segmentation

UNC-CH

Group Leader, Deep Learning course

Aug 2024 – Dec 2024

- Apply various object detection models and image segmentation models, such as YOLOv11, SAM, and U-Net on the remote sensing forest images to detect and segment tree canopies to better manage forest resources.
- Use the Roboflow online platform to label and add extracted and enhanced shadow features as extra layers to the model to improve the model prediction ability by 10%.

Enron corpus data clustering and semantic analysis

UNC-CH

Group Leader, Reproducible Data Science

Aug 2024 – Dec 2024

- Clean the enron corpus data with dplyr in R and retain over 40,000 email exchanges, and perform Exploratory Data Analysis (EDA). Apply the Louvain algorithm from the igraph package to cluster the data, resulting in 9 groups that aligned with the company's business departments.
- Conduct semantic analysis on email exchanges within the clustered groups by integrating the ChatGPT API. Analyze the sentiment of email content and classified departments, achieving a classification accuracy of 90%.

US median household income analysis

UNC-CH

Individual Project for Applied Statistics

Aug 2023 – Dec 2023

- Conduct EDA on the US Census data with R, visualizing data with heatmaps, finding correlated features, and detecting outliers to clean the data.
- Apply feature selection methods such as Lasso and backward/forward to get regression models and interpretation of features selected. Diagnose models by analyzing QQ-Plots and other properties such as Cook's Distance. Apply tree-based models, bagging, and RandomForests on the dataset, and achieve a lower test error.

Teaching Experience

Instructional Assistant:

Introduction to Data Models and Inference, *UNC Spring 2025*

Introduction to Optimization, *UNC Fall 2024*

Probability Theory and Mathematical Statistics, *Fudan University Spring 2023*

Awards and Scholarships

Scholarships:

\$5,300 of Academic Scholarship awarded by UNC STOR department in June 2025

Professional Scholarship of School of Mathematical Sciences in 2022-2023 academic year

Professional Scholarship of School of Mathematical Sciences in 2021-2022 academic year

Skills

Programming Languages: Python, R, MATLAB

Language Proficiency: TOFEL: 111; GRE: 328(158+170+4)

Interests: Guitar, Tennis, Badminton

Leadership/Extracurricular

Fudan Art Troupe

Director of Administration Department

Fudan University

Spring 2020 – Fall 2022

- Support business development of university's graduation festival. Sponsorship added up to more than ¥180,000.
- Manage the recruitment of the whole Fudan Art Troupe, successfully recruit more than 70 skilled new members.
- Lead a group of 20+ members on daily administrative work of the whole Troupe, including activity planning, reimbursements, etc.