TIANKAI LI

96 Jinzhai Road, Hefei, Anhui, 230026, P.R.China
Phone: +86-18094576811 ⋄ Email: tiankai_li@mail.ustc.edu.cn ⋄ Website: tiankaili.github.io

EDUCATION

University of Science and Technology of China 09/2021 - 06/2025 (Expected)
School of Gifted Young B.S. in Statistics
Major GPA: 3.89 GPA: 3.65 (87.25/100)

Selected Courses:

Time Series Analysis	(96/100)	Real Analysis	(94/100)
Functional Analysis	(95/100)	Regression Analysis	(92/100)
Convex Optimization	(95/100)	Multivariate Analysis	(91/100)
Applied Statistical Software	(95/100)	Optimization Algorithms	(90/100)

Leadership:

Member of the Student Council, School of Gifted Young *09/2021 - 06/2022*
• Organized over 10 large-scale events at the college level.

Dais Member, the GC Model United Nations event in Ningbo *04/2022 - 08/2022*
• Served as the main host of the conference and completed the meeting minutes.

Class Committee Member *09/2021 - Present*
• Organized over 20 class-level events.

PREPRINT

Chuanhao Li, Runhan Yang, **Tiankai Li**, Milad Bafarassat, Kourosh Sharifi, Dirk Bergemann, Zhuoran Yang
STRIDE: A Tool-Assisted LLM Agent Framework for Strategic and Interactive Decision-Making
Submitted for review to The 13th International Conference on Learning Representations (ICLR 2025)
Available on arXiv:2405.16376

RESEARCH EXPERIENCE

Comparative Analysis of DPO and PPO-Based RLHF: both Empirical and Theoretical Insights *08/2024 - Present*
Supervisor: Prof. Zhuoran Yang *Yale University*
• Conducted comprehensive research on various preference optimization methods for RLHF.
• Designed experiments to compare the impact of reference policy and preference datasets on the performance of DPO and PPO-based RLHF methods.
• Provided a theoretical analysis on how reference policies and preference datasets influence the effectiveness of DPO and PPO-based RLHF methods.

STRIDE: A Tool-Assisted LLM Agent Framework for Strategic and Interactive Decision-Making *04/2024 - 08/2024*
Supervisor: Prof. Zhuoran Yang *Yale University*
Results: paper, code
• Contributed to the final design and implementation of the STRIDE framework architecture.
• Implemented the framework across 4 Markov Decision Process environments.
• Engineered the Highway environment code to exemplify the STRIDE framework's functionality in an real-world MDP scenario.
• Constructed experiments comparing the performance of the framework on reasoning tasks, achieving at least 30% performance improvement over the zero-shot CoT and few-shot CoT baselines.

Integration of Large Language Models and Knowledge Graphs *11/2023 - 05/2024*
Supervisor: Prof. Jie Wang *University of Science and Technology of China*
• Proposed a method for automatically identifying incorrect reasoning paths using LLMs.
• Collected benchmarks related to Large Language Models (LLMs) for subsequent experiments.
• Developed a framework for generating inductive questions for LLMs based on Knowledge Graphs.

Flexibility Design for Medical Consumables Kits *06/2023 – 11/2023*
Supervisor: Prof. Lindong Liu *University of Science and Technology of China*
• Learned the long chain design for Online Resource Allocation Problem and Vehicle Routing Problem.
• Proposed to modify the long chain design according to the SPD mode.
• Incorporated additional nodes into the long chain design to accommodate medical consumables kits.

ENTREPRENEURSHIP & PROJECT

Co-founder and CIO *08/2024 - Present*
R Square Asia Technology Limited *AI-driven Solutions Startup*
• Co-founded a technology startup focused on developing AI-driven solutions for information retrieval services in higher education institutions.
• Developed systems to enhance information transmission between faculty and students, aiming to eliminate information gaps.
• Piloted the system at several universities, including City University of Hong Kong.
• Aimed to create a seamless communication system in universities, improving resource accessibility for both faculty and students.

A New First-Order Integer-Valued Autoregressive Model with Poisson Ailamujia Innovations *12/2023 – 01/2024*
Lecturer: Prof. Yu Chen *Course: Time Series Analysis*
• Introduced INAR model with Poisson Ailamujia Innovations based on the binomial thinning operator and understood the moments of the model.
• Used Conditional least squares, Yule-Walker, and Conditional Maximum Likelihood for estimating the parameters.
• Emphasized our model's superiority over P-INAR(1) and PL-INAR(1) based on both AIC and BIC criteria when fitting real data.

Development and Visualization of Double Eleven Shopping Festival Data Analysis Using R Shiny *04/2023 – 06/2023*
Lecturer: Prof. Canhong Wen *Course: Applied Statistical Software*
• Conducted in-depth analysis on Double Eleven shopping festival data, considering factors such as gender, age, and income.
• Developed and presented the analysis results through an interactive R Shiny website.

AWARDS

• Mathematics competition of Chinese College Students *Second Prize 2022*
• USTC Outstanding Students Award *Silver(10%) – 2022*
• Mathematics competition of Chinese College Students *Third Prize 2021*
• USTC Outstanding Students Award *Bronze(15%) - 2021*

SKILLS

Programming	R (Familiar), Python (Intermediate), C (Intermediate)
Tools	LaTeX, Markdown, Microsoft Office, Photoshop
Languages	English (TOEFL: 106 - R: 29, L: 29, S: 22, W: 26)
Interests	Photography, Travel, Model United Nations (MUN), Contract Bridge