Jiayou Liang

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EDUCATION BACKGROUND

University of Chicago   **Chicago, IL**
- **Program:** MS in Applied Data Science   **GPA**: 4.0/4.0   Expected 12/2025
- Coursework: Machine Learning and Predictive Analytics, Big Data Platforms, Natural Language Processing

Beijing Normal – Hong Kong Baptist University   **Zhuhai, China**
- **Degree**: BS in Financial Mathematics, First Class Honours   **GPA**: 3.77/4.0   09/2020–06/2024
- **Honors and Awards:**
  First Class Award (12/2021, 12/2022, 12/2023), President's Honor Roll (every semester)
  Third Prize in Guangdong Division of China Undergraduate Mathematical Contest in Modeling (CUMCM, 10/2022)

University of Oxford   **Online**
- **Summer course:** Artificial Intelligence and Machine Learning (Grade: A)   08/2022

RESEARCH EXPERIENCE

Accelerating Adaptive Algorithms At Scale through Reparameterization | Research Assistant   4/2025 – Present
The University of Chicago | Supervisor: Prof. Rebecca Willett   Illinois, United States
- **Implemented scalable approximations of EGOP**: built low-rank estimation and periodic reparameterization modules based on *auxiliary EGOP* and *randomized SVD*, enabling faster convergence of Adam/Adagrad in large-scale model training without significant computational overhead.
- **Conducted hyperparameter search and ablation studies** on **Fashion-MNIST, TinyMNIST, and EMNIST (Letters/Digits)**, comparing models with/without reparameterization, different optimizers, and learning-rate schedules; reported convergence speed, validation accuracy, memory footprint, and runtime to ensure reproducibility of results.
- **Related work:** [2502.01594] Faster Adaptive Optimization via Expected Gradient Outer Product Reparameterization

Pathology Multi-Agent RAG with ARPO-Based Policy Optimization | Data Scientist   4/2025 – Present
The University of Chicago | Supervisor: Prof. Utku Pamuksuz   Illinois, United States
- Initiated and led the overall design of a "**Multi-Agent RAG + ARPO**" framework in the pathology domain: applied ARPO to focus on branching exploration and step-level credit assignment at high-uncertainty tool steps, strengthening strategy learning for *which agent acts, when to act, and which retrieval method to use*.

Deep Assortment Optimization | Research Intern   4/2025 – Present
The University of Texas at Austin | Supervisor: Prof. Rui Gao   Remote
- Transformed discrete assortment selection into subset distribution learning, applying continuous relaxations (STGS/SIMPLE/NCPSS/SFESS) and permutation-invariant autoregressive modeling with RNN, enabling differentiable optimization under k-subset constraints.

RESEARCH PAPER

Paper: Analyst Reports and Stock Performance: Evidence from the Chinese Market
- **Role:** Co-author (Rui Liu, Jiayou Liang, Haolong Chen and Yujia Hu)
- **Keywords:** Chinese stock market, Sentiment analysis, Natural language processing, BERT
- **Published by: Asia-Pacific Financial Markets**
- **Doi:** https://doi.org/10.1007/s10690-025-09522-w

INTERNSHIP EXPERIENCE

Exion Asia (HuiZhou) Co., Ltd, *Assistant for Marketing and Sales Analysis*   **06/2023-08/2023**
- **Sales trend analysis**: Decomposed sales and revenue trends by region, industry, and product line, identifying seasonal patterns and promotional effects; created weekly/monthly reports and executive summaries to pinpoint growth and decline drivers.
- **Visualization and automation**: Built multi-dimensional dashboards (KPI, funnel, geographic distribution) in Tableau; automated the generation of regular reports, reducing manual aggregation time.

Bank of Communications Huizhou Branch, *Customer Service Manager*   **06/2022–07/2022**
- Managed customer banking inquiries, ensuring a satisfactory service experience with prompt resolution