

EDUCATION

Hong Kong Baptist University

Hong Kong SAR, China

B.S.S.C. (Hons.) in Sociology, Minor in Computer Science

2022–2026 (Anticipated)

- **Research Interest:** Large Language Model Agent, Complex System, Computational Social Science, Social Simulation, Social Stratification, Social Networks
- **GPA:** cGPA: 3.62/4.0, Major GPA: 3.69/4.0, Minor GPA: 3.72/4.0
(First Class Hons.: cGPA 3.4 or above)
- **Relevant Coursework:** Intro to AI and ML (A-) | NLP and LLM (In Progress) | Social Stat. (A) | Intro to Python and its Applications (A-) | Problem Solving Using Object Oriented Approach (A) | Calc., Prob., and Stat. for CS (A-) | Fundamental of Data Analysis and Management (A-) | Sociological Classical Theory (A) | Sociological Theory II Contemporary Approaches (A-) | Social Networks (A-)

PUBLICATIONS

1. [Under Review] Qingbin Zeng, Ruotong Zhao, Jinzhu Mao, **Haoyang Li**, Fengli Xu[✉], & Yong Li. (2025). CrimeMind: Simulating urban crime with multi-modal LLM agents. *arXiv preprint arXiv:2506.05981*.
2. [Working Paper] **Haoyang Li**, Xiao Jia, & Zhanzhan Zhao[✉]. (2025). The emergence of altruism in Large-Language-Model agents society. *arXiv preprint arXiv:2509.22537*.
3. [Working Paper] **Haoyang Li**, Songwei Li, Xiao Liu, Bill Shi, Fengli Xu[✉], & James Evans[✉]. (2025). Dispersed knowledge, decentralized decisions: A labor market for multi-agent task allocation. *Poster presented at The 1st International Conference on AI Scientists (ICAIS 2025)*. [View Poster]
4. [Working Paper] **Haoyang Li**, Hongru Du[✉], Runzhou Liu, & Sen Pei[✉]. (2025). Mobility agents: Modeling urban human mobility patterns through theory-guided LLM agents. [View Slides]

RESEARCH EXPERIENCES

Research Intern | Future Intelligence Lab, Tsinghua University & Knowledge Lab, University of Chicago

2025.03 – Present

- Supervised by **Prof. Fengli Xu**, Assistant Professor, Department of Electronic Engineering, Tsinghua University
- Co-supervised by **Prof. James Evans**, Max Palevsky Professor, Director of Knowledge Lab, University of Chicago
- *Interdisciplinary LLM Agents Research:* Co-designed LLM Agents incorporating sociological theories to simulate and analyze human mobility, social segregation, crime patterns and market mechanisms, exploring underlying social behavior
- *In-depth Exploration of LLM Agents:* Investigated advanced technologies and design paradigms of LLM Agents, contributing to experimental work and co-authorship of resulting research papers

Research Intern | Dept. of Systems and Information Engineering, University of Virginia & Pei Group, Columbia University

2025.07 – Present

- Supervised by **Prof. Hongru Du**, Assistant Professor, Department of Systems and Information Engineering, University of Virginia
- Co-supervised by **Prof. Sen Pei**, Assistant Professor, Mailman School of Public Health, Columbia University
- *Interdisciplinary LLM Agents Research:* Explored integrating social science theory-driven LLM Agents into complex urban environments for social simulation, targeting applications in human mobility and public health
- Spearheaded the development of a physics-informed and sociological theory-guided LLM Agent framework for modeling urban human mobility, executing experiments, and drafting research manuscripts

RESEARCH EXPERIENCES	<p>Research Assistant School of Artificial Intelligence, The Chinese University of Hong Kong, Shenzhen 2025.07 – 2025.11</p> <ul style="list-style-type: none"> Supervised by Prof. Zhanzhan Zhao, Joint Assistant Professor, School of Artificial Intelligence & Division of Computational Social Science, The Chinese University of Hong Kong, Shenzhen <i>Interdisciplinary LLM Agents Research</i>: Developed LLM-driven agent-based modeling frameworks focusing on human-like economic behaviors (e.g., cooperation, altruism) in LLMs' interactions. Led the design of agentic workflows, experimental implementation, and manuscript writing under the supervision <p>Research Assistant Department of Sociology, Hong Kong Baptist University 2024.03 – 2024.06</p> <ul style="list-style-type: none"> Supervised by Prof. Jin Jiang, Associate Professor, Department of Sociology, Hong Kong Baptist University <i>Project</i>: Staying in the Nest? A Study of Young Adults' Co-residence with Parents in the United Kingdom, Mainland China and Hong Kong <i>Quantitative Research</i>: Conducted quantitative analysis of survey on youth living arrangements, identifying key variables through literature synthesis and data organization Investigated socioeconomic drivers (economic resources, cultural values, life-course factors, etc.) shaping residential decision-making in young adults
SELECTED PROJECT	<p>Term Paper on How Unequal in Social Capital Fuels Higher Education Opportunity Inequality in China</p> <p><i>Course</i>: SOCI 4035, <i>Instructor</i>: Prof. Jin Jiang, <i>Term</i>: 25 Spring 2025.3</p> <ul style="list-style-type: none"> Quantitatively investigated stratifying effects of cultural capital (paternal education, leadership capital) on higher education access inequality, leveraging nationally representative CFPS 2020 data through ordinal logistic regression modeling Proposed evidence-based policy interventions targeting institutional barriers perpetuating educational disparities
AWARDS AND HONORS	<ul style="list-style-type: none"> President's Honor Roll, Hong Kong Baptist University Semester 1, 2022–2023; Semester 1&2, 2023–2024; Semester 1&2, 2024–2025 Dean's List, Hong Kong Baptist University Semester 2, 2022–2023 HKSAR Government Talent Development Scholarship, HK\$10,000 2023.04
TALKS	<ul style="list-style-type: none"> Guest Lecture, The Chinese University of Hong Kong, Shenzhen 2025.11 Topic: The Emergence of Altruism in LLM Society & Mobility Agents • Venue: AIE1901 AI Exploration I • [Slides] Poster Presentation, ICAIS 2025 2025.11 Title: Dispersed Knowledge, Decentralized Decisions: A Labor Market for Multi-Agent Task Allocation • Venue: The 1st International Conference on AI Scientists (ICAIS 2025), Beijing, China • [ICAIS Website] • [Poster]
TEACHING	<ul style="list-style-type: none"> Teaching Assistant, Hong Kong Baptist University 2024.1-2024.4 Course: COMP1005 Essence of Computing [Course Outline]
SKILLS	<ul style="list-style-type: none"> Languages: Chinese Mandarin (Native), Chinese Cantonese (Listening), English (Working Language), \LaTeX Programming & Software: Python, Java, C, SQLite, MATLAB, Stata, SPSS, Microsoft Office