HAOYANG LI 李昊阳

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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:** Computational Social Science, Large Language Model Agent, 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 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-) | Intro to AI and ML (A-) | Social Stat. (A) | Sociological Classical Theory (A) | Sociological Theory II Contemporary Approaches (A-) | Social Networks (A-)

PUBLICATION

1. Zeng, Q., Zhao, R., Mao, J., **Li, H.**, Xu, F., Li, Y. (2025). CrimeMind: Simulating urban crime with multi-modal LLM agents. *arXiv preprint arXiv:2506.05981.*

   - Collaborated with **FIB-LAB@THU**, under review by a **top-tier AI conference**
   - We proposed **CrimeMind**, a novel LLM-driven Agent-based modeling (ABM) framework for simulating urban crime within a multi-modal urban context
   - By applying theories from sociology and criminology into the agentic workflow of CrimeMind, the crime hotspot prediction and spatial distribution accuracy achieving up to **a 24% improvement over the strongest baseline** of both traditional ABMs and deep learning baselines

RESEARCH EXPERIENCES

Research Intern | Future Intelligence Lab, Tsinghua University   2025.03 − Present
- Supervised by **Prof. Fengli Xu**, Assistant Professor, Department of Electronic Engineering, Tsinghua University
- *Interdisciplinary LLM Agents Research*: Co-designed LLM Agents incorporating sociological theories to simulate and analyze human mobility, social segregation, and crime patterns, exploring underlying social behavior mechanisms.
- *In-depth Exploration of LLM Agents*: Investigated advanced technologies of and design thinking of LLM Agents, contributing to experimental work and co-authorship of a resulting research paper

Research Intern | Dept. of Systems and Information Engineering, University of Virginia
                                                                                    2025.07 − Present
- Supervised by **Prof. Hongru Du**, Assistant Professor, Department of Systems and Information Engineering, University of Virginia
- *Interdisciplinary LLM Agents Research*: Explored integrating social science theory-driven LLM Agents into multimodal urban environments for social simulation, targeting applications in population mobility and public health.
- Spearheaded efforts in developing physics formula-based and sociological theories-guided prompt engineering and the design of LLM Agentic workflows, executing experiments, and drafting research manuscripts.

Research Assistant | School of Artificial Intelligence, CUHKSZ   2025.07 − Present
- Supervised by **Prof. Zhanzhan Zhao**, Joint Assistant Professor, School of Artificial Intelligence & Division of Computational Social Science, The Chinese University of Hong Kong, Shenzhen
- *Interdisciplinary LLM Agents Research*: 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.

RESEARCH EXPERIENCES

Research Assistant | Department of Sociology, Hong Kong Baptist University

2024.03 − 2024.12

- Supervised by **Prof. Yinni Peng**, Associate Professor, Department of Sociology, Hong Kong Baptist University
- *Project*: Study of Return Migration of Overseas Chinese Students (HKBU 12600620)
- *Qualitative Research*: Conducted qualitative data collection through fieldwork observations and literature review, organizing and analyzing findings to support sociological research
- *Computational Social Science Research*: Developed custom Python scripts utilizing web scraping and NLP sentiment analysis techniques to acquire and process data for sociological research problems

Research Assistant | Department of Sociology, Hong Kong Baptist University

2024.03 − 2024.06

- Supervised by **Prof. Jin Jiang**, Associate Professor, Department of Sociology, Hong Kong Baptist University
- *Project*: Staying in the Nest? A Study of Young Adults' Co-residence with Parents in the United Kingdom, Mainland China and Hong Kong
- *Quantitative Research*: 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

Term Paper on How Unequal in Social Capital Fuels Higher Education Opportunity Inequality in China

Course: SOCI 4035, *Instructor*: Prof. Jin Jiang, *Term*: 25 Spring

2025.3

- **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

- **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   2023.06

SKILLS AND INTERESTS

- **Languages**: Chinese Mandarin (Native), Chinese Cantonese (Listening), English (Working Language), LaTeX
- **Programming & Software**: `Python`, `Java`, `C`, `SQLite`, `MATLAB`, `Stata`, `SPSS`, `Microsoft Office`
- **Interests**:

  - **Chinese Writing**: won the *First Prize* of the 24th National New Concept Writing Contest
  - **Hiking**: I am deeply impressed by the *MacLehose Trail* of Hong Kong