

Hong Liu

Academic profile

[Home](#)[Research](#)[CV](#)[Outputs](#)[Contact](#)[Support](#) [Portfolio](#)

CURRICULUM VITAE

Hong Liu

M.Sc. in Computer Science and Technology, Macau University of Science and Technology; returning to Xiamen University for doctoral study in Epidemiology and Health Statistics; undergraduate training at Xiamen University; interdisciplinary background spanning public health, epidemiology, AI, and data science

I have graduated from Macau University of Science and Technology with an M.Sc. in Computer Science and Technology. I will return to Xiamen University to continue doctoral study in Epidemiology and Health Statistics, building on work in infectious disease forecasting, influenza co-circulation analysis, outbreak modelling, and the integration of epidemic dynamics with viral evolution.

PROFILE

I have graduated from Macau University of Science and Technology with an M.Sc. in Computer Science and Technology. I will return to Xiamen University to continue doctoral study in Epidemiology and Health Statistics, with research continuing to focus on infectious disease forecasting, influenza co-circulation analysis, outbreak modelling, and related research software.

EDUCATION

Xiamen University

Upcoming Ph.D. study in Epidemiology and Health Statistics | School of Public Health | returning for doctoral study under Prof. Tianmu Chen

Upcoming doctoral research will extend toward multimodal infectious disease spatiotemporal dynamics, viral evolution early warning, and integrated macro-micro modelling frameworks.

Macau University of Science and Technology

M.Sc. in Computer Science and Technology, Faculty of Innovation Engineering | Graduated | GPA 3.63/4 | Full scholarship and living allowance

Completed M.Sc. training in Computer Science and Technology under Academician Nanshan Zhong and Prof. Chitin Hon, with co-supervision by Prof. Tianmu Chen (Xiamen University). Graduate training emphasized intelligent control technology, artificial intelligence, numerical analysis, statistics, pattern recognition, algorithm theory, and optimization methods.

Xiamen University

B.Med. in Preventive Medicine (School of Public Health) & B.Econ. in Statistics (Wang Yanan Institute for Studies in Economics) | Preventive Medicine supervised by Prof. Tianmu Chen
Academic and project experience during the undergraduate stage laid the groundwork for infectious-disease modelling, health data analysis, and later AI-assisted research workflows. Selected high-mark coursework: Epidemiology, Biostatistics, and Health Statistics.

Master' s thesis

Multi-source-data-driven study of influenza spatiotemporal transmission dynamics, viral evolution, and early warning in China | Completed master's thesis direction

The completed thesis linked surveillance, environmental, behavioral, and sequence-related evidence while keeping completed work, submitted manuscripts, and future doctoral stages explicitly separated.

RESEARCH INTERESTS

- Multimodal infectious disease forecasting and early warning.
- Influenza co-circulation analysis, co-infection signals, and non-stationary time-series modelling.
- Spatiotemporal transmission dynamics, small-sample outbreak modelling, and viral evolution.

PUBLICATIONS AND MANUSCRIPTS

Published papers

2026 | npj Systems Biology and Applications

Spatiotemporal instability of influenza seasonality during viral co-circulation

Status: Published

First author

First-author npj Systems Biology and Applications article. Accepted on 17 April 2026 and published online on 04 May 2026.

<https://www.nature.com/articles/s41540-026-00729-9>

2024 | Nature Communications

Temporal shifts in 24 notifiable infectious diseases in China before and during the COVID-19 pandemic

Status: Published

Co-author (7/14)

Co-authored publication listed in the source materials.

<https://doi.org/10.1038/s41467-024-48201-8>

2024 | Heliyon

Transmissibility of the variant of concern for SARS-CoV-2 in six regions

Status: Published

Co-author

Co-authored publication listed in the source materials.

<https://doi.org/10.1016/j.heliyon.2024.e32164>

2024 | Parasites & Vectors

Three machine-learning models to predict dengue vectors Breteau Index based on meteorology and biotope in Fujian China

Status: Published

Co-author (2/10)

Co-authored publication listed in the source materials; DOI is not explicitly provided there.

2024 | Medicine and Society

Impact of long-term care insurance on the physical and mental health of older adults in China

Status: Published

Co-author (2/5)

Co-authored publication listed in the source materials.

<https://doi.org/10.13723/j.yxysh.2024.08.011>

2023 | Frontiers in Cellular and Infection Microbiology

Assessment of transmissibility and measures effectiveness of SARS in 8 regions, China, 2002-2003

Status: Published

Co-author (4/13)

Co-authored publication listed in the source materials.

<https://doi.org/10.3389/fcimb.2023.1212473>

2023 | China CDC Weekly

Advancements in Defining and Estimating the Reproduction Number in Infectious Disease Epidemiology

Status: Published

Co-author (7/11)

Co-authored publication listed in the source materials.

<https://doi.org/10.46234/ccdcw2023.158>

Preprints

2025 | arXiv preprint

Multi-modal Adaptive Estimation for Temporal Respiratory Disease Outbreak

Status: Public preprint; journal submission under review

First author

First-author MAESTRO study. In the documented evaluation context, the reported R^2 reached 0.956 on a 10-year Hong Kong influenza dataset.

<https://doi.org/10.48550/arXiv.2509.08578>

Submitted / under review

2025 | Epidemics

Dual-Model Framework for CHIKV Transmission Modeling: ODE and Petri Net Analysis of the 2025 Foshan Outbreak

Status: Submitted; with editor

First author

First-author dual-framework outbreak modelling study for the 2025 Foshan chikungunya outbreak.

Manuscript ID: EPIDEMICS-D-25-00174

2025 | Health Soft Science

Psychological resilience, occupational stress, organizational trust, and burnout among healthcare workers

Status: Submitted; with editorial office

Co-author (2/6)

Questionnaire-based collaborative study using CFA, SEM, and bootstrap analysis.

Manuscript ID: 251802

RESEARCH SOFTWARE AND PROJECTS

MultiCoPat

Public repository

Multi-region and multi-window influenza co-circulation analysis and prediction workflows.

<https://github.com/Hylouis233/MultiCoPat>

MAESTRO

Public repository

Multimodal forecasting framework for respiratory disease activity and early-warning-oriented time-series analysis.

<https://github.com/Hylouis233/MAESTRO>

ODE-Petri-Chikungunya

Public repository

Research workflow comparing ODE and Petri Net perspectives for the 2025 Foshan chikungunya outbreak.

<https://github.com/Hylouis233/ODE-Petri-Chikungunya>

Breteau Index Prediction Model

Public repository

Supplementary codebase for machine learning-based dengue vector Breteau Index prediction.

<https://github.com/Hylouis233/Breteau-Index-Prediction-Model-using-machine-learning>

Infectious disease intelligence platform

Mixed public/private codebases; selected components are private

Crawler, database, ETL, and visualization workflow for infectious-disease news collection, monitoring, and research-oriented data support.

No public repository link is shown for this item.

bibverify

Referenced public repository

BibTeX validation and metadata completion tool for DOI, author, year, deduplication, and citation normalization workflows.

<https://github.com/Hylouis233/bibverify>

MCM 2023 Problem C Solution

Public repository

Team solution and codebase for the Mathematical Contest in Modeling (MCM) 2023 Problem C.

<https://github.com/Hylouis233/MCM2023C>

Baidu Index Spider

Public repository

A Baidu Index scraping tool equipped with a graphical user interface (GUI).

<https://github.com/Hylouis233/baidu-index-spider>

GMCM LaTeX Template

Public repository

Refactored LaTeX templates for the China Graduate Mathematical Contest in Modeling.

https://github.com/Hylouis233/GMCM_LaTeX

AWARDS

- 2025 | Regional First Prize, 15th MathorCup Mathematical Application Challenge (Graduate Division) | China Society for Overall Planning, Optimization and Economic Mathematics

- 2025 | National Third Prize, 15th MathorCup Mathematical Application Challenge (Graduate Division) | China Society for Overall Planning, Optimization and Economic Mathematics
- 2025 | Second Prize, 20th Citibank Financial Innovation Application Competition | Shanghai University Student Science and Technology Entrepreneurship Foundation; Citigroup Financial Information Services (China) Co., Ltd.
- 2024 | Third Prize, 21st China Graduate Mathematical Contest in Modeling (“Huawei Cup”) | China Graduate Mathematical Contest in Modeling Organizing Committee
- 2024 | Project Innovation Award, 13th “Win in Guangzhou” Hong Kong–Macao Division | “Win in Guangzhou” University Entrepreneurship Competition Organizing Committee

EXPERIENCE

Completed M.Sc. coursework

2024–2025 | Macau University of Science and Technology

Completed coursework in intelligent control technology, artificial intelligence, numerical analysis, statistics, pattern recognition, algorithm theory, and optimization methods, with a cumulative GPA of 3.63/4.

Student service roles

2019–2021 | Xiamen University

Served as a student staff member in the medical school organization department and later as deputy head in the innovation service division of the student technology, entrepreneurship, and employment service center.

Laboratory escape-risk digital twin project

2024–2025 | Collaborative laboratory project

Participated in full-stack development for a P3 laboratory digital twin and risk-assessment workflow involving Unity3D, Python, Flask, MySQL, and scenario simulation.

Protein design and structure-biology tooling support

2024–2025 | Collaborative laboratory project

Supported target-site discovery and primer design workflows using masif_seed, Rosetta, AlphaFold 3, and RFDiffusion.

Infectious-disease news data platform

2024–present | Independent project

Independently developed and maintained a platform covering data collection, cleaning, ETL, database ingestion, and visualization for infectious-disease news and event monitoring.

Questionnaire data cleaning and SEM analysis

2024–2025 | Collaborative health research project

Handled large-scale questionnaire cleaning, CFA, SEM, reliability and validity analysis, and bootstrap-based inference for healthcare workforce research.

Selected practice and volunteer activities

2020–2024 | Xiamen University and related teams

Participated in outreach, practice, and volunteer activities including recruitment outreach, public-health themed practice teams, and report writing.

Competition projects

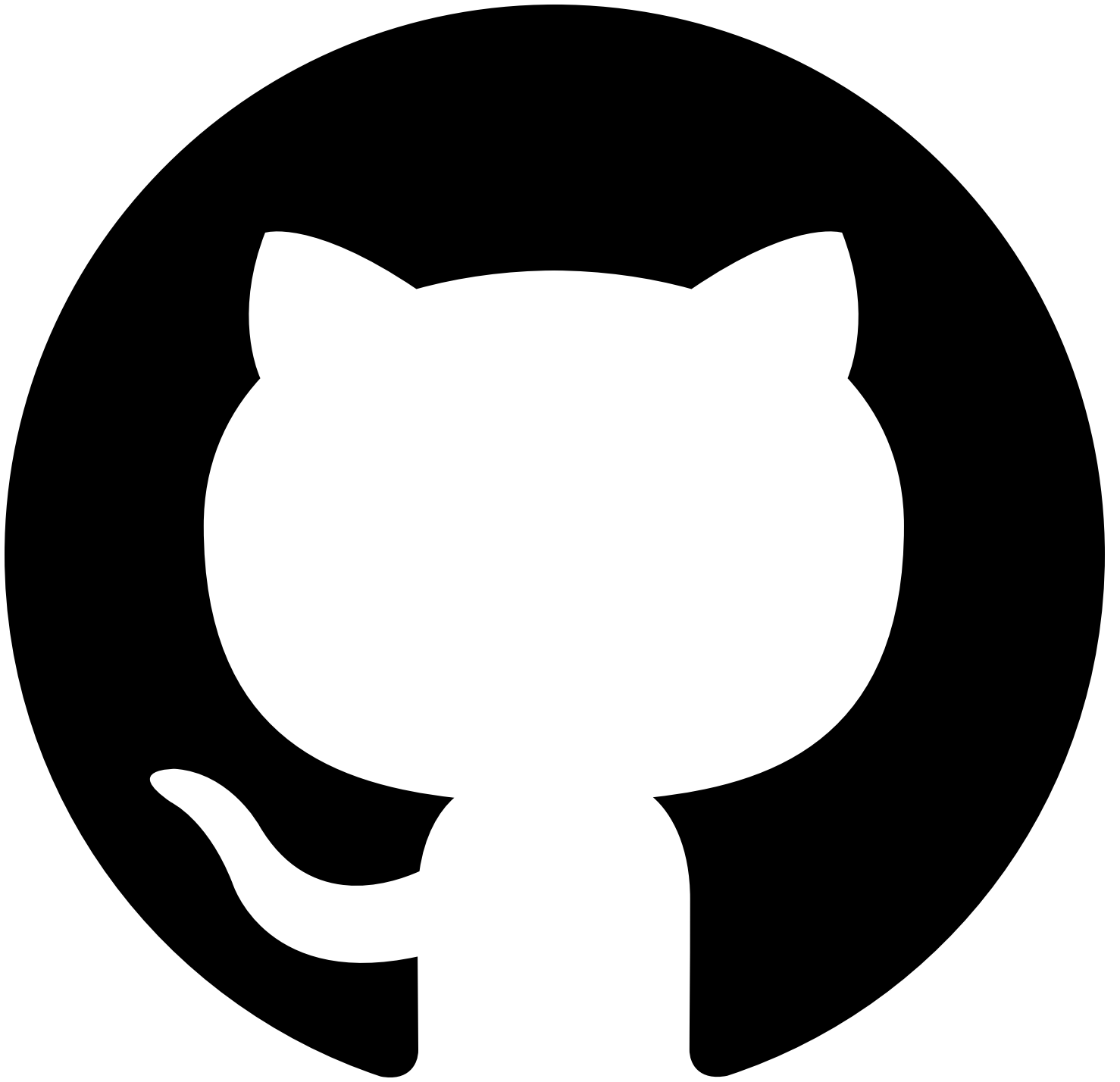
2024–2025 | Modelling and innovation competitions

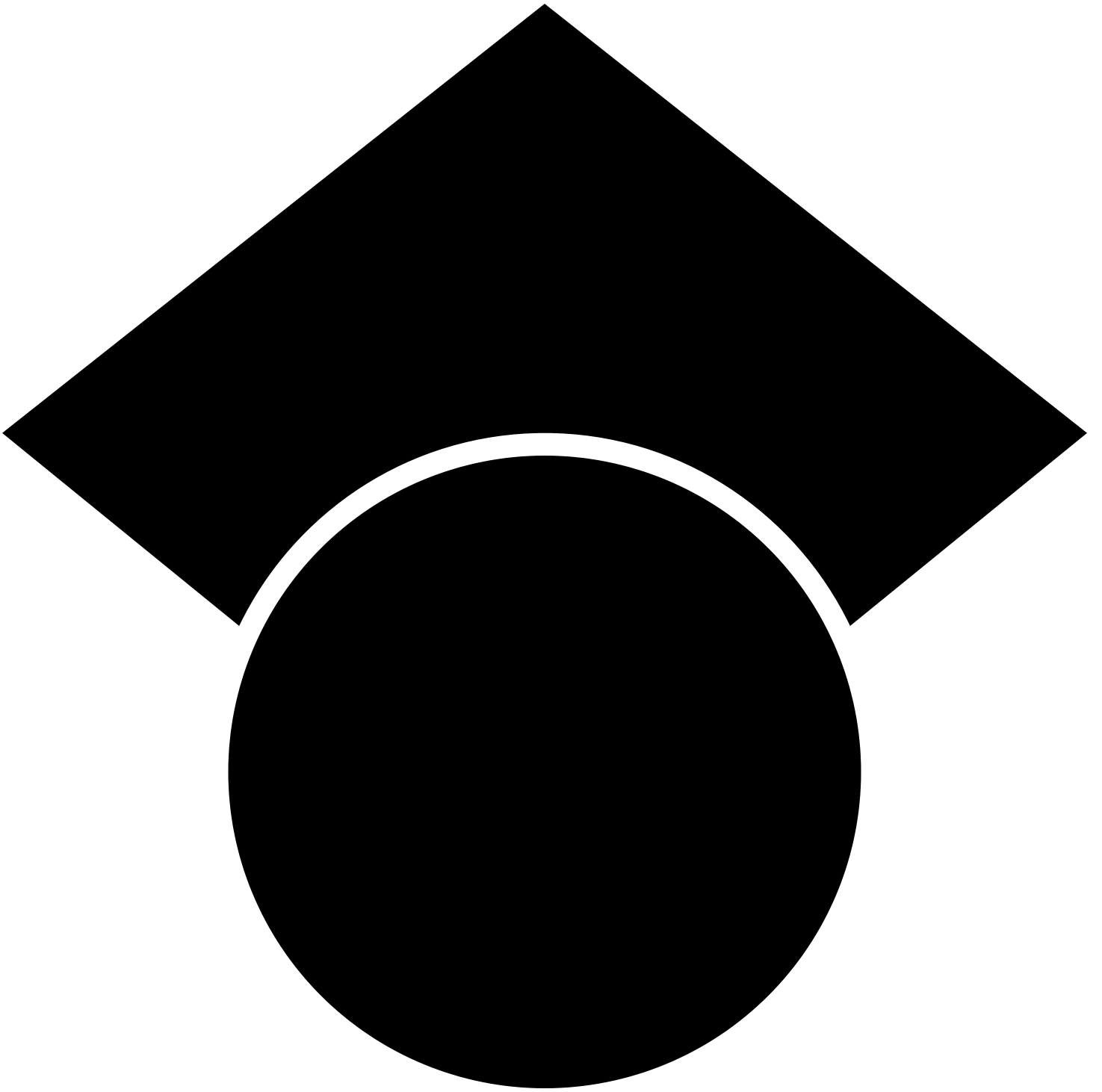
Contributed modelling, optimization, software implementation, and evaluation work in the Huawei Cup, MathorCup, Citibank competition, and related innovation contests.

© 2026 Hong Liu • Xiamen University

Academic homepage with cross-links to project portfolio and public research profiles.







RG



