

Tairan Wang

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Education

University College London

MEng Mathematical Computation, **First-Class Honours (78%)**

London, UK

Sep 2022 – Jun 2026

Research Experience

When Specifications Conflict: A Symmetry-Based Framework for Measuring LLM Preferences

arXiv [Paper]

UCL 2026

- Proposed a symmetry-based framework for analysing how large language models resolve conflicts between competing task specifications.
- Constructed an executable benchmark with 550 conflict instances across 11 mathematical function families and extended evaluation to Boolean algebra, code generation, and clinical-rule settings.

Cognitive Modeling of Code Readability: Working Memory and Semantic Recoverability

MEng Dissertation [Paper]

UCL 2026

- Proposed two complementary cognitively grounded metrics for code readability, modeling working-memory load and semantic recoverability during program comprehension.
- Developed CognaScore and PreFixScore and evaluated them on function- and file-level readability datasets, demonstrating stable alignment between CognaScore and human readability judgments.
- Follow-up research is ongoing.

Meow-Omni 1: A Multimodal Large Language Model for Feline Ethology

arXiv [Paper]

UCL 2026

- Developed an open-source quad-modal multimodal large language model integrating video, audio, physiological time-series, and textual reasoning for feline intent recognition.

HoarePrompt: Structural Reasoning About Program Correctness in Natural Language

ICSE 2026 [Paper]

UCL & PKU 2024–2025

- Proposed a framework for verifying program correctness from natural-language specifications using Hoare triples and strongest postcondition calculus.
- Introduced k -induction to improve reasoning about loops.

Professional Experience

Co-Founder & Core Developer, Alephedge

Website

Hong Kong 2026 – Present

- Co-founded a quantitative AI technology company developing an end-to-end investment research platform, covering interpretable AI factor discovery, portfolio construction, and risk management.
- Led the design and development of core quantitative research and software infrastructure.

Summer Research Internship, UCL

London Jun–Sep 2025

- Worked on code readability model.

Technical Skills

- **Programming:** Python, Java, C.
- **AI & Machine Learning:** Machine Learning, Deep Learning, Large Language Models (LLMs), multimodal learning, and AI agent development.
- **Software Engineering:** Full-stack development, AI-assisted development workflows, and maintainable software engineering practices.
- **Quantitative Computing:** Factor research, portfolio construction, risk management.

Academic Achievements

- Ranked first in multiple UCL Computer Science modules, including COMP0010 (Software Engineering, **1/150**), COMP0169 (Machine Learning for Visual Computing, **1/130**), and COMP0024 (Artificial Intelligence and Neural Computing, **1/50**).