Minghao (Mark) Liu

The Hong Kong University of Science and Technology, Hong Kong SAR, China
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EDUCATION

BEng in Computer Science HKUST, Hong Kong SAR 2022–2026 (expected)
CGA: 3.901/4.3 (top 2%)

Exchange Student McKelvey School of Engineering, Washington University in St. Louis Fall 2024
GPA: 3.94/4.00

PUBLICATIONS

- **A Benchmark for Evaluating Purchase Intention Comprehension Abilities of Large Language Models in E-commerce**
  Wenxuan Ding*, Weiqi Wang*, Sze Heng Douglas Kwok, **Minghao Liu**, Tianqing Fang, Jiaxin Bai, Xin Liu, Changlong Yu, Zheng Li, Chen Luo, Qingyu Yin, Bing Yin, Junxian He, Yangqiu Song.
  Findings of EMNLP 2024
- **MedEBench: Revisiting Text-instructed Image Editing on Medical Domain**
  Minghao Liu, Zhitao He, Zhiyuan Fan, Qingyun Wang, Yi R. Fung
  Submitted to EMNLP 2025

PROJECTS & RESEARCH EXPERIENCE

UROP, HKUST Advisor: Dan Xu Jun–Aug 2023

- Worked on **depth estimation** using diffusion models.
- Implemented a UNet-based architecture inspired by *DepthGen*.
- Designed an interpolation algorithm to reduce distribution shift on the NYU-Depth V2 dataset.
- Developed a diffusion-based transformer model for robust scene understanding.

UROP, HKUST Advisor: Yu Hu Sep–Dec 2023

- Studied the **Firing Rate Network Model** to understand brain-wide neural dynamics in zebrafish.
- Analyzed neural activity data using statistical and machine learning methods.
- Simulated recurrent neural circuits and trained connectivity using **Physics-Informed Neural Networks (PINNs)**.

KnowComp Group, HKUST Advisor: Yangqiu Song Feb 2024 – Sep 2024

- **BrainASER (Led by Shi Haochen)**: Explored the relationship between neural activity and **knowledge graph** structures.
  - Investigated structural similarities between the brain and knowledge graphs.
  - Aligned fMRI data (Narratives dataset) with story-based stimuli to study brain-language interactions.
  - Contributed to developing brain-inspired representations for downstream NLP tasks.

- **IntentionQA (Led by Ding Wenxuan)**: A benchmark to evaluate language models' understanding of purchase intentions in E-commerce.
  - Designed to test LMs on inferring user intent and predicting future purchases.
  - Contributed to data preprocessing, product-intention alignment via ASER, and negative distractor sampling.
  - Helped evaluate 19 LMs, revealing limitations in reasoning over real-world E-commerce scenarios.

RenLab, HKUST Advisor: Yi R. (May) Fung Feb 2025 – Present

- Researching medical image editing and developing automatic evaluation methods for assessing multimodal model performance in clinical and research contexts.
- Aligning physics concepts and statements with formal language such as lean. (Ongoing)

TBD Advisor:TBD

- Developing agent-based simulation systems grounded in real-world legislation and policy documents to assess and predict the societal impact of public policies. This project involves modeling agents within political and institutional frameworks, enabling comparisons between simulated decisions and actual policy outcomes. (Ongoing)

STANDARDIZED TESTS

- IELTS: 7.0

AWARDS & SCHOLARSHIPS

- First Prize – 37th Chinese Physics Olympiad (Provincial Level) 2020
- First Prize – 38th Chinese Physics Olympiad (Provincial Level) 2021
- First Prize – Chinese Mathematical Olympiad in Senior (Provincial Level) 2021
- Talent Development Scholarship – HKSAR Government Scholarship Fund 2023
- Scholarship for Continuing Undergraduate Students 2023–24
- Dean's List

EXTRACURRICULAR ACTIVITIES

- Mechanical Engineer – HKUST RoboMaster Team ENTERPRIZE Sep 2022 – Feb 2023