

Hong Kong University of Science and Technology (Guangzhou) 2025 Spring and Fall PhD/Research Assistant Recruitment

The **Data Intelligence and Geometric AI Laboratory (DIGAI Lab)** at the Hong Kong University of Science and Technology (Guangzhou) cordially invites outstanding students passionate about cutting-edge AI research to join us for PhD studies or visiting research. Our lab **focuses on representation learning, Large Foundation Models, and geometric topology, dedicated to advancing the theoretical development of geometric AI and its innovative applications in network science and scientific discovery**. We welcome students from diverse academic backgrounds to explore frontier fields together, offering rich research resources and international collaboration opportunities.



1. Research Directions (including but not limited to)

(1) **Large Foundation Models and Geometry/Topology/Manifolds**

This direction aims to explore the relationships between embedding spaces in foundational models (including generative models and large language models), the latent geometric structures of data, topological features, and manifolds. Research includes but is not limited to the following core areas:

- **Representation learning and alignment of multi-source data**
- **Consistency between representation spaces and latent geometric structures of data**
- **Hyperbolic geometry, non-Euclidean machine learning, multi-curvature collaborative learning**

We warmly welcome students and researchers interested in **Large language Models, representation learning, non-Euclidean spaces, hyperbolic geometry, or the broader field of differential geometry and machine learning** to join our team. Our goal is to drive breakthrough progress in foundational models at both theoretical and application levels through interdisciplinary collaboration.

(2) Personalized Recommendation and Network Science Discovery

This research direction aims to enhance the capabilities of large models using knowledge graphs and localized data to address complex issues such as personalized recommendations, social network analysis, communication network optimization, and group behavior analysis. Main research directions include:

- **Personalized large models enhanced by knowledge graphs and localized data**, techniques like GraphRAG
- **Personalized recommendation, social network, and communication network modeling in non-Euclidean geometric spaces**
- **Modeling, representation, and optimization of large-scale network science problems**

Our research **not only focuses on theoretical innovation but also strives to solve practical industrial problems**. Our goal is to provide dual value to academia and industry, pushing the frontiers of personalized recommendation and network science.

(3) AI4SCI

Our laboratory is also dedicated to exploring innovative applications of foundational models in scientific fields, especially in bioinformatics/biomedicine and materials science. Main research directions include:

- **Utilizing large foundation models to advance biomedical data analysis and processing**
- **Applications in biomedicine and materials science based on geometry and machine learning**

We welcome researchers interested in interdisciplinary fields such as **artificial intelligence, computational biology, medical informatics, and materials science** to join our team, collectively driving innovation and breakthroughs in the AI4SCI field, bringing new transformations to life sciences and medical research.

2. About HKUST GZ

The Hong Kong University of Science and Technology (Guangzhou) is the first cooperative educational institution between mainland China and Hong Kong with independent legal status established since the promulgation of the "Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area" and the "Overall Plan for Deepening Guangdong-Hong Kong-Macao Comprehensive Cooperation in Nansha, Guangzhou". Approved by the Ministry of Education of China, it was officially established in June 2022. HKUST(GZ) is committed to innovation, focusing on developing integrated disciplines, exploring innovative talent cultivation models, and aiming to become a model of integrated educational development between mainland China and Hong Kong, as well as an internationally renowned high-level university dedicated to cultivating high-level innovative talents for the future.



HKUST(GZ) issues master's and doctoral degree certificates of the Hong Kong University of Science and Technology in accordance with relevant regulations and the school's graduation requirements. As of September 2024, the school has over 300 academic staff members, including more than 240 tenure-track academic staff, 100% of whom hold doctoral degrees, 98% have overseas educational backgrounds or work experience, nearly 20% have been selected for national talent programs, nearly 50% have been selected for provincial or ministerial-level and above talent programs, and 15% have been listed in the global top 2% scientists ranking.

Since its establishment, HKUST(GZ) has been approved for 3 Guangdong Provincial Key Laboratories (research bases, platforms), 11 Guangzhou City Key Laboratories, and has obtained over 300 government-funded research projects, including 66 national-level projects, and has undertaken or participated in 18 national key major projects.

The university has signed cooperation agreements with over 90 leading enterprises and renowned research institutions, including Alibaba Cloud, Guangdong Yuexin Semiconductor, and Shenzhen Bay Laboratory, and has established joint laboratories with nearly 10 industry leaders. There are over 100 on-campus entrepreneurial incubation projects and more than 40 registered companies. The HKUST(GZ) Innovation District is

accelerating its construction. **The university has jointly established a 1 billion yuan HKUST(GZ) Technology Transfer Mother Fund with Guangzhou Industrial Investment Group, and has partnered with a batch of direct investment fund partners, bringing the total fund size to 2.4 billion yuan.**

2. Team Introduction

The DIGAI Lab team is led by Dr. Menglin Yang. Dr. Yang received his Ph.D. from the Chinese University of Hong Kong and is currently conducting postdoctoral research at Yale University. **Starting from 2025, he will serve as an assistant professor in Artificial Intelligence Thrust at HKUST(GZ).** The advisor's team has rich research experience in machine learning, geometric AI, and scientific computing, and has close collaborations with multiple top universities and research institutions globally.

Successfully admitted PhD students will receive full scholarships. The research group is a vibrant and warm academic family that emphasizes academic integrity and fairness, can provide a good research environment and computational support, ensuring that group members can smoothly carry out their research work.

3. What We Offer

- Competitive scholarships
- Excellent research environment and systematic research training, promoting high-quality, high-efficiency research and communication
- Opportunities for multidisciplinary collaboration, covering fields such as geometry, data science, computer science, and artificial intelligence

4. Recruitment Details

We welcome applicants with the following backgrounds:

- Students with a strong interest in large models, differential geometry, network science, AI4SCI, and related fields
- Good oral and written English skills (IELTS 6.5 or TOEFL 80 required for

admission)

PhD students can choose to enroll in **February or August 2025**. The PhD program duration is 3 years (for applicants with a relevant research master's degree) or 4 years (for applicants without a relevant research master's degree). The tuition fee is 40,000 RMB/year, and all admitted PhD students will receive a full scholarship (approximately 15,000 RMB/month).

5. How to Apply

Please send your CV, undergraduate and master's transcripts, professional ranking certificate (if available), letters of recommendation (if available), representative papers or projects (if available), Research Proposal (if available), etc. to digailab@outlook.com. The email subject format should be: Position Name + Your Name + Degree + Graduated School + Major. After receiving the application materials, we will conduct an initial screening and arrange suitable interview times. Those who have not received an interview notice **within two weeks** can consider giving up waiting.

We look forward to your joining us to start a new chapter of scientific research at HKUST(GZ) DIGAI Lab, working together to advance the development of artificial intelligence and geometric science.