

# HAOYU HUANG

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## Education

### The Chinese University of Hong Kong

*Master of Science in Computer Science*

*Research Topic: Knowledge Graph, Large Language Model*

*Supervisor: Prof. James Cheng*

Sep. 2024 – July 2025

*Hong Kong, China*

### Beijing Jiaotong University

*Bachelor of Engineering in Computer Science*

*Research Topic: Knowledge Graph, Recommendation*

*Supervisor: Prof. Huaiyu Wan*

Sep. 2019 – July 2023

87.4/100 | 3.68/4.0, Beijing, China

## Publications

(# corresponding author, \* equal contribution)

### Building and Exploiting Spatial-Temporal Knowledge Graph for Next POI Recommendation

Wei Chen, Huaiyu Wan<sup>#</sup>, Shengnan Guo, Haoyu Huang, Shaojie Zheng, Jiamu Li, Shuohao Lin, Youfang Lin

- Published on Knowledge-Based Systems (KBS) 2022
- Independently completed the writing of code and the experiments for six baseline models, as well as the data cleaning and processing of the models.
- Contributes: 1)Propose STKG for the first time without relying on any external attributes of users and POIs in the field of the next POI recommendation; 2)A novel spatial-temporal transfer relation in STKG is designed to explicitly express movement behaviors among POIs of users.

### Next-POI Recommendation with Spatial-Temporal Knowledge Graph and Pre-trained Language Model

Wei Chen<sup>\*</sup>, Haoyu Huang<sup>\*</sup>, Tianyi Wang, Zhiyu Zhang, Shengnan Guo, Youfang Lin, Huaiyu Wan<sup>#</sup>

- Manuscript submitted to TKDE 2024 with major revision.
- The co-leader of the work. Proposed the idea and independently completed all the codes.
- Contributes: 1)Proposed STKG contrastive learning method that effectively tackles the issue of knowledge noise in trajectories; 2)Converts the structured sequence data into unstructured trajectory text, allowing the advantages of PLM in semantic modeling can be used to capture user movement trajectories.

## Academic Experience

### The Chinese University of Hong Kong

*Research Assistant*

Sep 2024 – Now

*Supervisor: Prof. James Cheng*

- Currently focus on the topic about how to improve the performance of community search in GraphRAG.
- Proposed a method to do graph clustering semantically in the GraphRAG system.

### Peking University

*Research Intern*

Mar 2024 – Now

*Supervisor: Prof. Wentao Zhang*

- Conduct research on the combination of Graph and Large Language Models(LLMs) for creation of graph foundation model.
- Proposed a novel method to let Large Language Models understand graph structure feature better. (Project Leader)
- Proposed a novel method to transform natural language text to structured knowledge graphs. (Project Leader)

### Century Games

*AI Engineer Intern*

Jul 2023 – Dec 2023

*Mentor: Yuanlei Niu*

- Conduct AI+Game product research and development. My main projects include the development of game NPC language module, classification and analysis of game feedbacks with LLM.
- Responsible for the back-end development of the LLM-based product, FAWKES.

### Beijing Jiaotong University

*Research Intern*

Apr 2021 – Nov 2023

*Supervisor: Prof. Huaiyu Wan*

- Proposed the use of spatio-temporal knowledge graph to mine the mobile trajectory preferences of social media users, solving the data sparsity problem.
- Proposed the use of large language models to learn the preferences of social media users, achieving state-of-the-art (SOTA) performance.
- Published a paper as the fourth author in Knowledge-Based Systems 2022 (SCIE-AN1). And submitted another paper as the co-first author to a CCF-A journal.

## Awards

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Entrance Scholarship 2024-25 of CUHK-CSE

Beijing Jiaotong University Social Work Scholarship

Beijing Jiaotong University Third Class Scholarship for Academic Excellence

Third Prize of Mathematical Modelling Competition for College Students of Beijing Jiaotong University

Second Prize of Programming Competition for College Students of Beijing Jiaotong University

First Prize in Mathematics Competition for College Students of Beijing Jiaotong University

Bronze Award in the National College Student Algorithm Design and Programming Challenge

## Technical Skills

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**Programming Skills:** Python, Pytorch, C, C++, C#, Shell, SQL, ELK, Unity.

**Languages:** English: IELTS (overalls: 6.5), Mandarin Chinese: Native

## Leadership / Extracurricular

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Science and Technology Association of BJTU

2020 – 2023

*Cochairman*

*Beijing Jiaotong University*

- \* Organized science and technology activities such as "Science and Technology Star" scholarship defense and famous teacher lecture hall for students in the college.