

Chengyi LIU

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GitHub Profile

Google Scholar

RESEARCH INTEREST

My current research focuses on the development of **Generative Recommender Systems**, with an emphasis on modeling user behavior patterns through probabilistic generative processes. Specifically, I investigate the application of **Diffusion Models** to address various recommendation tasks, aiming to enhance both the expressiveness and effectiveness of recommendation algorithms.

EDUCATION

- **The Hong Kong Polytechnic University** *Jan. 2023 - Now*
Ph.D. Candidate in Computer Science Advisor: Chair Professor Qing Li, Professor Wenqi Fan
- **University College London** *Sept. 2021 - Dec. 2022*
Master of Science MSc Health Data Science
- **University of Nottingham** *Sept. 2017 - Jun. 2021*
Bachelor of Science BSc Computer Science with Artificial Intelligence

SELECTED PROJECTS

- **Diffusion Language Model for Recommendation** *TOIS under review*
Chengyi Liu, Wenqi Fan, Qing Li
 - Developed DLMRec, a discrete diffusion language model for recommendation, which integrates a collaborative-aware stochastic tokenizer, a curriculum-driven training strategy, and a stability-aware voting mechanism to effectively align diffusion-based denoising with preference recovery for robust and consistent predictions.
- **Continuous-time Discrete-space Diffusion Model for Recommendation** *WSDM 2026*
Chengyi Liu, Xiao Chen, Shijie Wang, Wenqi Fan, Qing Li
 - Developed CDMRec, a discrete diffusion framework for recommendation featuring a popularity-aware noise schedule and consistency parameterization for stable training and fast sampling, enabling efficient recommendations.
 - Citations: 7
- **Score-based Generative Diffusion Models for Social Recommendations** *TKDE 2025*
Chengyi Liu, Jiahao Zhang, Shijie Wang, Wenqi Fan, Qing Li
 - Developed SGSR, a score-based generative diffusion model for social recommendation with efficient training objectives and an optimized learning strategy, achieving state-of-the-art results across benchmarks.
 - Citations: 54
- **Generative Diffusion Models on Graphs: Methods and Applications** *IJCAI 2023*
Chengyi Liu, Wenqi Fan, Yunqing Liu, Jiatong Li, Hang Li, Hui Liu, Jiliang Tang, Qing Li
 - Conducted a comprehensive survey of graph diffusion models—SMLD, DDPM, and SGM—and summarized key applications of generative diffusion on graphs, particularly in molecular and protein modeling.
 - Citations: 152
- **Mixture-of-Experts Knowledge Graph Retrieval-Augmented Generation for Multi-Agent LLM-based Recommendation** *KDD 2026*
Shijie Wang, Chengyi Liu, Yujuan Ding, Shanru Lin, See-Kiong Ng, Xu Xin, Wenqi Fan
 - Proposed MixRAGRec, a multi-agent KG-RAG framework that employs a Mixture-of-Experts retrieval agent for query-aware multi-granularity knowledge selection and MMAPO for coordinated optimization, achieving effective and efficient LLM-based recommendation.
 - Citations: 3
- **Graph Defense Diffusion Model** *KDD 2026*
Xin He, Wenqi Fan, Yili Wang, Chengyi Liu, Rui Miao, Xin Juan, Xin Wang
 - Proposed GDDM, a diffusion-based purification framework that iteratively injects and removes noise to mitigate adversarial perturbations, effectively restoring clean graph structures and features.
 - Citations: 6
- **Beyond Static Diffusion: Explicitly Modeling Temporal Patterns in Sequential Recommendation** *SIGIR 2026*
Yao Wu, Chengyi Liu, Wenqi Fan, Rui Zhang
 - Proposed TDRec, a temporally-aware diffusion framework that explicitly embeds temporal transitions into both forward and reverse diffusion processes via timestep-aware sequence mixing, enabling efficient parallel training with a closed-form solution and achieving state-of-the-art sequential recommendation.
 - Citations: 2

ACADEMICAL SERVICES

Conference Reviewer: WWW'23, KDD'25, KDD'26, ACMMM'26, CIKM'26, AAI'26
Journal Reviewer: TOIS, TNNLS, TKDD, TAI
Workshop Service: Web chair for DExLLM workshop at ICDE'25

AWARDS

- **KDD Excellent Reviewer** *2025*
- **Bachelor of Science with Honours in the First Class at UNNC** *2021*
- **The Head's scholarship at UNNC** *2020*
- **The Excellent Freshmen Scholarship at UNNC** *2017*

TEACHING EXPERIENCE

The Hong Kong Polytechnic University

- Teaching Assistant, Database Systems *Fall'2025*
- Teaching Assistant, Legal Aspects and Ethics of Computing *Spring'2025*
- Teaching Assistant, Database Systems *Fall'2024*
- Teaching Assistant, Data Structures and Database Systems *Spring'2024*
- Teaching Assistant, Data Structures *Fall'2023*

INTERNSHIP EXPERIENCE

- **Algorithm Researcher at Tencent**
Application Deployment of Generative Recommendation Algorithms (Diffusion Models) in Real-World Industrial Scenarios

VOLUNTEER EXPERIENCES

- **Footprint IHF Project**
Served as a support teacher of Bali IHF project.
Tough basic content such as English, music, and art to children aged 6-18. *2017*