

Gongyou Xu

Graduate Application CV · Computer Science / Artificial Intelligence



- +86 180 6537 7520 • KungyuHsu@163.com • Research Fellow at BNB
- Research interests: Graph ML · Recommender Systems · Multimodal Learning · Efficient AI Systems

Research Focus & Background

Research Fellow at BNB working at the intersection of graph learning, recommender systems, multimodal representation learning, and efficient AI systems. I have contributed to peer-reviewed and under-review research while also delivering real-world systems for vessel safety, indoor positioning, knowledge services, document intelligence, and distributed LLM inference. This combination enables me to move from identifying research questions and designing models to building reproducible experiments and validating ideas in production. I am pursuing graduate study to deepen my foundations in machine learning and develop methods that are both technically rigorous and useful in practice.

Programming: Python / C / C++ / Java / SQL

Deep Learning: CNN / LSTM / Attention / GNN / GAN / RL / Autoencoders

Vision: ResNet / ViT / YOLO / Faster R-CNN / U-Net

Graph & Recommendation: MF / BPR / LRML / SASRec / NGCF / LightGCN / S3-Rec

NLP & LLM: Transformer / BERT / Multimodal Topic Modeling

Systems: PyTorch / TensorFlow / Django / Docker / Linux / Git / WebSocket / MQTT

Research Experience

Beijing Normal-Hong Kong Baptist University (BNB) Research Fellow

2024.04 - Present

- Conduct collaborative research and engineering work in machine learning and AI systems, including graph learning, sequential recommendation, multimodal topic modeling, and distributed LLM inference.
- Contribute to data preparation, model implementation, experimental evaluation, and paper writing for collaborative research projects.
- Built reproducible Docker-based research environments and a graph-compression method that retained approximately **95%** of baseline performance at around **80%** compression.

Fujian Cross-Strait Information Technology Co., Ltd. AI / Large Language Model Engineer

2023.04 - 2024.04

- Developed applied AI systems across knowledge services, document intelligence, computer vision, indoor positioning, and workflow automation, from requirements analysis to deployment and integration.
- Developed production experience with PyTorch, OCR, YOLO-based vision, Django / REST APIs, Docker / Linux, WebSocket, MQTT, and data pipelines.
- Contributed to a national genealogy and cultural-data intelligent system shown publicly at the Straits Forum, covering retrieval, entity / relation extraction, association analysis, and question answering.

Publications

Simplified Sampled Softmax Loss for Sequential Recommendation

Under Review · COLING 2026

G. Xu, A. Zhang, Y. Yu, L. Zhang, R. Gao, J. Wei, H. Yin. An efficient sampled-softmax objective for sequential recommendation, targeting popularity bias and hard-negative learning.

GCRank: Graph Condensation for Link Prediction via Edge Rank Preservation

Under Review · ICLR 2027

W. Zhu, G. Xu, Z. Yu, S. Wang, A. C. Zhou, J. Chen, et al. A training-free graph-condensation method for link prediction that preserves positive-negative edge-ranking consistency.

Publications continued

Transporting Semantics Beyond Words: Multimodal Augmented Embedding Transport for Neural Topic Modeling Under Review · AAAI 2027

D. Guo, Z. Luo, **G. Xu**, N. Bouguila, X. Liu, W. Fan. MAETopic combines embedding transport and multimodal augmentation to improve neural topic modeling.

PASTD: Progressive Augmentation and Spatiotemporal Decoupling Contrastive Learning for Skeleton-Based Action Recognition ICASSP 2025 · Peer-reviewed conference paper

Q. Huang, W. Qian, C. Li, **G. Xu**, Z. Chen. Studies skeleton-based action recognition through progressive augmentation and spatiotemporal decoupling contrastive learning.

Hyperbolic Adversarial Learning for Personalized Item Recommendation DASFAA 2024 · Peer-reviewed conference paper

A. Zhang, Y. Yu, **G. Xu**, R. Gao, L. Zhang, S. Gao, H. Yin. Studies hyperbolic representation and adversarial learning for personalized item recommendation.

Design and Deployment of Django-based Housing Information Management System Journal of Physics: Conference Series, 2023

X. Yu, X. Li, C. Wu, **G. Xu**. A Django-based housing information management system covering web back-end development, data management, and system deployment.

Selected Engineering Projects

Distributed LLM Inference System Based on vLLM [AI Systems / Distributed Inference](#) 2026 - Present

Designed a multi-node inference workflow, including service decomposition, node communication, transport-layer optimization, containerized deployment, and performance testing for concurrent LLM serving.

Vision-Based Vessel Personnel Safety System [Computer Vision / Edge AI](#) 2023 - 2024

Developed components for person detection, behavior recognition, and fall-overboard alerts from surveillance video; used MQTT for alert communication and on-site integration.

High-Precision UWB Indoor Positioning System [UWB / Real-Time Systems](#) 2023 - 2024

Contributed to a high-precision indoor positioning project for a major power-grid enterprise, covering positioning algorithms, data communications, and real-time WebSocket links with host systems.

Knowledge Base and Automated Financial Review System [Knowledge Engineering / Automation](#) 2023 - 2024

Built retrieval and question-answering workflows for internal knowledge services, together with rule-based checking, exception prompts, result aggregation, and human review for financial-document processing.

Complex Layout OCR Platform [Document Intelligence / Computer Vision](#) 2023 - 2024

Reworked image preprocessing, text detection, layout analysis, recognition, and extraction for multi-column and image-text-mixed documents; supported both historical books and complex newspaper layouts.

National Genealogy and Cultural Knowledge System [AI / Knowledge Graph Engineering](#) 2023 - 2024

Connected genealogy and regional-culture data through retrieval, person and relation extraction, association analysis, question answering, and result presentation; the system was demonstrated at the Straits Forum.

E-commerce Sales Data Collection Automation [Browser Automation / Data Engineering](#) 2025

Automated browser-based collection, task batching, session management, exception recovery, and result consolidation for sales data, achieving more than 8x the throughput of the previous manual workflow.

Chinese, Hokkien Speech and Classical Chinese Data Platform [Data Platform / NLP Engineering](#) 2023 - 2024

Developed back-end services, data cleaning, task assignment, annotation, and quality-control workflows for Chinese and Hokkien speech and classical Chinese text datasets.

| Education

Nanjing University of Posts and Telecommunications, Tongda College **B.Eng. in Computer Science and Technology**

2019 - 2023

Undergraduate thesis: oriented object detection for optical remote-sensing imagery. Former head of the Software Development Department, University Science & Technology Association.

| Awards & Distinctions

- First Prize, Blue Bridge Cup C/C++ Programming Competition (Jiangsu Province)
- Bronze Prize, China RPA + AI Development Competition
- First Prize, National Computer Ability Challenge (East China Region)
- Third Prize, National Final of the Computer Ability Challenge
- Meritorious Youth League Member, Nanjing University of Posts and Telecommunications

| Patents & Systems

- Patent applications: neural-network authenticity analysis, lightweight rotated-image correction, YOLOv5 self-labeling
- Software & systems: Django-based applications, computer-vision self-labeling, real-time AI systems