

Hang (Harvey) Li

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RESEARCH INTERESTS	• Large Language Models (LLMs) and LLM-based Multi-Agent Systems • AI for Education • Machine Learning on Graphs; Multimodal Learning	
EDUCATION	Michigan State University, MI, USA	08/2022 – Present
	• Ph.D., Computer and Information Science • Advisor: Dr. Jiliang Tang	
	University of Illinois Urbana-Champaign, IL, USA	08/2015 – 05/2017
	• M.S. in Statistics	
	Beijing Jiaotong University, Beijing, China	09/2011 – 07/2015
	• B.S. in Information and Computing Science	
RESEARCH EXPERIENCE	Data Science and Engineering Lab, MI, USA	08/2022 – Present
	Research Assistant	
	• Topic: Multi-agent System, Large Language Model Post-training, AI for Education • Mentor: Dr. Jiliang Tang and Dr. Hui Liu	
	Capital One, NY, USA	06/2026 – 08/2026
	Research Intern	
	• Project: Prompt optimization for long-context reasoning (NeurIPS'26). • Mentor: Dr. Anoop Kumar and Dr. Yichi Zhang	
	Squirrel AI Learning, WA, USA	01/2024 – 12/2024
	Research Intern	
	• Project: LLMs based knowledge tagging and error detection (IAAI'25, ACL'25, ACL'26). • Mentor: Dr. Qingsong Wen and Dr. Tianlong Xu	
	TAL Education Group, Beijing, China	06/2018 – 10/2021
	Machine Learning Scientist	
	• Project: Multimodal deep learning for audio analysis (EMNLP'21, AAAI'22). • Mentor: Dr. Zitao Liu	
HONORS AND AWARDS	• IAAI Innovative Application Awards 2025 • 2nd Place, OGB-LSC @ NeurIPS Node Classification Competition [Link] 2022 • 1st Place (Task 3), 2nd Place (Task 4 & Overall), NeurIPS Education Challenge 2020 • 2nd Place, EMNLP ClariQ Challenge (Clarifying Questions for Dialogue) [Link] 2020 • 1st Place, ACM UbiComp STABLO Time Series Classification Challenge [Link] 2020 • Top 25% Studies Excellent Scholarship 2011-2013	

MEDIA
COVERAGE

- “MSU studying AI use in elementary math education” [\[Video\]](#)
- “A new spin on AI offers more PD opportunities for elementary math teachers” [\[Link\]](#)
- “A new equation for teacher + student success” [\[Link\]](#)

PUBLICATIONS

Preprints and Submissions

* indicates equal contribution

- “Rubric Optimization for LLM-Based Automated Grading with Data Synthesis”
Hang Li, Kaiqi Yang, Yucheng Chu, Yue Xing, Hui Liu.
Submitted to *International Conference on Learning Representations (ICLR)*, 2027.
- “Planner-Guided Recursive Exploration for Diffusion Language Model Decoding”
Yingqian Cui, Wei Deng, Lantao Mei, Hang Li, Charu C. Aggarwal, Hui Liu, Yue Xing.
Submitted to *Nations of the Americas Chapter of the Association for Computational Linguistics (NAACL)*, 2027.
- “RubricWorld: World Model-Guided Rubric Optimization for LLM Graders”
Hongji Pu, Hang Li, Yucheng Chu, Jiliang Tang.
Submitted to *Nations of the Americas Chapter of the Association for Computational Linguistics (NAACL)*, 2027.
- “How Uncertain Is the Grade? A Benchmark of Uncertainty Metrics for LLM-Based Automatic Assessment”
Kaiqi Yang, Hang Li, Xianxuan Long, Fedor Filippov, Yucheng Chu, Yasemin Copur-Gencturk, Peng He, Cory Susanne Miller, Namsoo Shin, Joseph Krajcik, Hui Liu.
Submitted to *Nations of the Americas Chapter of the Association for Computational Linguistics (NAACL)*, 2027.

Conference and Journal Papers

- “MEMO: Memory-Guided Error Momentum for Prompt Optimization in Long-Context Reasoning”
Hang Li, Yichi Zhang, Chenyang Zhu, Anoop Kumar, Daben Liu.
In Test-time Continual Learning Agents workshop at **NeurIPS**, 2026.
- “Designing professional development in mathematics teacher education with AI as a facilitator: a roadmap grounded in high-quality professional development features”
Nickolina Yankova, Jinhyo Cho, Hang Li, Kaiqi Yang, Yasemin Copur-Gencturk, Jiliang Tang.
In *Journal of Mathematics Teacher Education (JMTE)*, 2026.
- “Exploring Solution Divergence and Its Effect on Large Language Model Problem Solving”
Hang Li, Kaiqi Yang, Yucheng Chu, Hui Liu, Jiliang Tang.
In *Findings of Empirical Methods in Natural Language Processing (EMNLP)*, 2026.
- “***Important** You should give me full credits!”: Exploring Prompt Injection Attacks on LLM-Based Automatic Grading Systems”
Hang Li, Fedor Filippov, Yuling Lin, Pengfei He, Kaiqi Yang, Yucheng Chu, Yingqian Cui, Hui Liu, Jiliang Tang.
In *Findings of Empirical Methods in Natural Language Processing (EMNLP)*, 2026.
- “Automated coding of content and pedagogical content knowledge of mathematics using a multi-agent large language model”
Yasemin Copur-Gencturk, Kyle Moreno, Yucheng Chu, Hang Li, Jiliang Tang.
In *Journal of ZDM – Mathematics Education (ZDM)*, 2026.
- “i-vip: A LLM-Driven Multi-agent System for Professional Development of Mathematics Teachers”
Hang Li, Kaiqi Yang, Yucheng Chu, Ahreum Han, Rui Meng, Yasemin Copur-Gencturk, Hui Liu.
In *Proceedings of the International Conference on Artificial Intelligence in Education*

(AIED), 2026.

- “Optimizing in-context demonstrations for LLM-based automated grading”
Yucheng Chu, Hang Li, Kaiqi Yang, Yasemin Copur-Gencturk, Kevin Haudek, Joseph Krajcik, Namsoo Shin, Jiliang Tang.
In *Proceedings of the International Conference on Artificial Intelligence in Education (AIED)*, 2026.
- “Confusion-Aware Rubric Optimization for LLM-based Automated Grading”
Yucheng Chu, Hang Li, Kaiqi Yang, Yasemin Copur-Gencturk, Joseph Krajcik, Namsoo Shin, Jiliang Tang.
In *Proceedings of the International Conference on Educational Data Mining (EDM)*, 2026.
- “ErrorRadar: Benchmarking Complex Mathematical Reasoning of Multimodal Large Language Models via Error Detection”
Yibo Yan, Shen Wang, Jiahao Huo, Hang Li, Boyan Li, Jiamin Su, Xiong Gao, Yifan Zhang, Tianlong Xu, Zhendong Chu, et al.
In *Findings of the Association for Computational Linguistics (ACL)*, 2026.
- “Reasoning by Exploration: A Unified Approach to Retrieval and Generation over Graphs”
Haoyu Han, Kai Guo, Harry Shomer, Yu Wang, Yucheng Chu, Hang Li, Li Ma, Jiliang Tang.
In *Proceedings of the ACM Web Conference (WWW)*, 2026.
- “LLM-based Automated Grading with Human-in-the-Loop”
Hang Li, Yucheng Chu, Kaiqi Yang, Yasemin Copur-Gencturk, Jiliang Tang.
In *IEEE International Conference on Teaching, Assessment, and Learning for Engineering (TALE)*, 2025.
- “Iterative LLM-Based Generation and Refinement of Distracting Conditions in Math Word Problems”
Kaiqi Yang, Hang Li, Yucheng Chu, Zitao Liu, Mi Tian, Hui Liu.
In *IEEE International Conference on Teaching, Assessment, and Learning for Engineering (TALE)*, 2025.
- “Human-AI Collaboration for Knowledge-in-use Assessment Design: Leveraging LLMs with RAG”
Juanhui Li, Tingting Li, Hang Li, Haoyu Han, Pengfei He, Peng He, Hui Liu.
In *IEEE International Conference on Teaching, Assessment, and Learning for Engineering (TALE)*, 2025.
- “Ask-Before-Detection: Identifying and Mitigating Conformity Bias in LLM-Powered Error Detector for Math Word Problem Solutions”
Hang Li, Tianlong Xu, Kaiqi Yang, Yucheng Chu, Yanling Chen, Yichi Song, Qingsong Wen, Hui Liu.
In *Proceedings of the 63rd Annual Meeting of the Association for Computational Linguistics (ACL)*, 2025.
- “Knowledge Tagging with Large Language Model based Multi-Agent System”
Hang Li, Tianlong Xu, Ethan Chang, Qingsong Wen.
In *Proceedings of the 37th Annual Conference on Innovative Applications of Artificial Intelligence (IAAI)*, 2025.
- “Large Language Models for Education: A Survey and Outlook”
Shen Wang*, Tianlong Xu*, Hang Li*, Chaoli Zhang, Joleen Liang, Jiliang Tang, Philip S. Yu, Qingsong Wen.
In *IEEE Signal Processing Magazine (SPM)*, 2025.
- “A LLM-Powered Automatic Grading Framework with Human-Level Guidelines Optimization”
Yucheng Chu*, Hang Li*, Kaiqi Yang, Harry Shomer, Hui Liu, Yasemin Copur-Gencturk, Jiliang Tang.

- In *Proceedings of the International Conference on Educational Data Mining (EDM)*, 2025.
- “Enhancing LLM-Based Short Answer Grading with Retrieval-Augmented Generation”
Yucheng Chu, Peng He, Hang Li, Haoyu Han, Kaiqi Yang, Yu Xue, Tingting Li, Joseph Krajcik, Jiliang Tang.
In *Proceedings of the International Conference on Educational Data Mining (EDM)*, 2025.
 - “Sub-graph Based Diffusion Model for Link Prediction”
Hang Li, Wei Jin, Geri Skenderi, Harry Shomer, Wenzhuo Tang, Wenqi Fan, Jiliang Tang.
In *Proceedings of the Learning on Graphs Conference (LoG)*, 2024.
 - “Graph-level Representation Learning with Joint-Embedding Predictive Architectures”
Geri Skenderi, Hang Li, Jiliang Tang, Marco Cristani.
In *Transactions on Machine Learning Research (TMLR)*, 2024.
 - “Exploring the Potential of Large Language Models (LLMs) in Learning on Graphs”
Zhikai Chen, Haitao Mao, Hang Li, Wei Jin, Hongzhi Wen, Xiaochi Wei, Shuaiqiang Wang, Dawei Yin, Wenqi Fan, Hui Liu, et al.
In *ACM SIGKDD Explorations Newsletter (SIGKDD Explorations)*, 2024.
 - “Content Knowledge Identification with Multi-agent Large Language Models (LLMs)”
Kaiqi Yang, Yucheng Chu, Taylor Darwin, Ahreum Han, Hang Li, Hongzhi Wen, Yasemin Copur-Gencturk, Jiliang Tang, Hui Liu.
In *Proceedings of the International Conference on Artificial Intelligence in Education (AIED)*, 2024.
 - “Are Large Language Models (LLMs) Good Social Predictors?”
Kaiqi Yang, Hang Li, Hongzhi Wen, Tai-Quan Peng, Jiliang Tang, Hui Liu.
In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2024.
 - “Generative Diffusion Models on Graphs: Methods and Applications”
Wenqi Fan, Chengyi Liu, Yunqing Liu, Jiatong Li, Hang Li, Hui Liu, Jiliang Tang, Qing Li.
In *Proceedings of the 32nd International Joint Conference on Artificial Intelligence (IJCAI)*, 2023.
 - “Self-supervised Audio-and-Language Pre-training with Extremely Low-Resource Parallel Data”
Yu Kang, Tianqiao Liu, Hang Li, Yang Hao, Wenbiao Ding, Zitao Liu.
In *Proceedings of the 36th AAAI Conference on Artificial Intelligence (AAAI)*, 2022.
 - “CTAL: Pre-training Cross-modal Transformer for Audio-and-Language Representations”
Hang Li, Yu Kang, Tianqiao Liu, Wenbiao Ding, Zitao Liu.
In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2021.
 - “Mathematical Word Problem Generation from Commonsense Knowledge Graph and Equations”
Tianqiao Liu, Qiang Fang, Wenbiao Ding, Hang Li, Zhongqin Wu, Zitao Liu.
In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2021.
 - “Learning Fine-Grained Multimodal Alignment for Speech Emotion Recognition”
Hang Li, Wenbiao Ding, Zhongqin Wu, Zitao Liu.
In *Proceedings of the Conference of the International Speech Communication Association (INTERSPEECH)*, 2021.
 - “A Multimodal Machine Learning Framework for Teacher Vocal Delivery Evaluation”
Hang Li, Yu Kang, Yang Hao, Wenbiao Ding, Zhongqin Wu, Zitao Liu.
In *Proceedings of the International Conference on Artificial Intelligence in Education (AIED)*, 2021.
 - “Multi-Task Learning based Online Dialogic Instruction Detection with Pre-trained Language Models”

Yang Hao, Hang Li, Wenbiao Ding, Zhongqin Wu, Zitao Liu.
 In *Proceedings of the International Conference on Artificial Intelligence in Education (AIED)*, 2021.

- “An Educational System for Personalized Teacher Recommendation in K-12 Online Classrooms”
 Jiahao Chen, Hang Li, Wenbiao Ding, Zhongqin Wu, Zitao Liu.
 In *Proceedings of the International Conference on Artificial Intelligence in Education (AIED)*, 2021.
- “Identifying At-Risk K-12 Students in Multimodal Online Environments: A Machine Learning Approach”
 Hang Li, Wenbiao Ding, Songfan Yang, Zitao Liu.
 In *Proceedings of the International Conference on Educational Data Mining (EDM)*, 2020.
- “Siamese Neural Networks for Class Activity Detection”
 Hang Li, Zhiwei Wang, Jiliang Tang, Wenbiao Ding, Zitao Liu.
 In *Proceedings of the International Conference on Artificial Intelligence in Education (AIED)*, 2020.
- “Multimodal Learning for Classroom Activity Detection”
 Hang Li, Yu Kang, Wenbiao Ding, Song Yang, Songfan Yang, Gale Yan Huang, Zitao Liu.
 In *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2020.
- “A Multimodal Alerting System for Online Class Quality Assurance”
 Jiahao Chen, Hang Li, Wenxin Wang, Wenbiao Ding, Gale Yan Huang, Zitao Liu.
 In *Proceedings of the International Conference on Artificial Intelligence in Education (AIED)*, 2019.

Book Chapters

- “Leverage LLMs on Knowledge Tagging for Math Questions in Education”
 Hang Li, Tianlong Xu, Qingsong Wen.
 In *Future of Learning with Large Language Models*, CRC Press, 2025.

Patents

- Hang Li, Wenbiao Ding, Zitao Liu, "Speaker recognition method, electronic device, and storage medium", US patent (US11676609B2), granted in 12/2022

PROPOSAL WRITING

- AI long form grading that reflects faculty style
 PI: Dr. Jiliang Tang
Role: Co-Designed and drafted the proposal
 Result: Submitted to the Gates Foundation and **funded in 2025**.
- Interactive, Individualized Professional Learning for Elementary School Teachers: Enhancing Content and Pedagogical Content Knowledge as a Basis for Improving Practice
 PI: Dr. Jiliang Tang
Role: Co-Designed and drafted the proposal
 Result: Submitted to the NSF and **funded in 2024**.
- Intelligent, Adaptive Program with Just-in-time Feedback for Preservice Teachers
 PI: Dr. Jiliang Tang
Role: Co-Designed and drafted the proposal
 Result: Submitted to the NSF and **funded in 2023**.

TUTORIALS

- “Bringing Generative Artificial Intelligence (GenAI) to Education”
Hang Li, Kaiqi Yang, Yucheng Chu, Jiliang Tang.
In *Proceedings of the International Conference on Educational Data Mining (EDM)*, 2025.

PRESENTATIONS	Invited Talks	
	• “LLM-Driven Multi-Agent System for Professional Development of Mathematics Teachers” Department of Educational Psychology at the University of Georgia	10/2026

• “i-vip: A LLM-Driven Multi-agent System for Professional Development of Mathematics Teachers” Presentation at AIED’26	06/2026
• “Optimizing in-context demonstrations for LLM-based automated grading” Presentation at AIED’26	06/2026
• “Enhancing LLM-Based Short Answer Grading with Retrieval-Augmented Generation” Presentation at EDM’25	06/2025
• “A LLM-Powered Automatic Grading Framework with Human-Level Guidelines Optimization” Presentation at EDM’25	06/2025
• “Assessing Teachers’ Content and Pedagogical Content Knowledge with an LLM-Based Grading System” Presentation at AERA’25	04/2025
• “Sub-graph Based Diffusion Model for Link Prediction” Presentation at LOG’24	08/2024

TEACHING EXPERIENCE

- Teaching Assistant for CSE 801B Introduction to Data Mining. (Graduate Level) Fall 2023
 - Organize online discussions, office hours, grading, and review sessions.
- Invited Lecturer for CSE 482 Big Data Analytics Fall 2025
 - Gave lectures on topics “Data Representation”, “Introduction to Hadoop”
 - Mentored a student for their honors-level project

MENTORING	● Hongji Pu, University of Illinois at Urbana-Champaign, M.S.	05/2026 – Present
	Coauthored paper: Submitted to NAACL’26	
	● Fedor Filippov,, Michigan State University, Undergraduate	01/2026 – Present
	Coauthored paper: Accepted by EMNLP’26	
	● Yucheng Chu, Michigan State University, Ph.D.	08/2024 – 05/2025
	Coauthored paper: Accepted by AIED’25, EDM’25, TALE’25	
	● Kaiqi Yang, Michigan State University, Ph.D.	08/2024 – 05/2025
	Coauthored paper: Accepted by AIED’24, EMNLP’26	
	● Ethan Chang, Columbia University, Undergraduate	05/2024 – 08/2024
	Coauthored paper: Accepted by IAAI’25	

- Yanling Chen, Michigan State University, Ph.D. 09/2024 – 12/2024
Coauthored paper: **Accepted by ACL’25**
- Jeffery Wang, High-school student 07/2026 – Present
Ongoing Project: Bias in LLMs based Automatic Grading System
- Sierra Liu, High-school student 06/2026 – Present
Ongoing Project: Bias in LLMs based Automatic Grading System

SERVICES

Organizer

- EDM Workshop on Generative AI (GenAI) for Education (GenAI4EDU) 2025
- AAAI Workshop on Artificial Intelligence for Education (AI4EDU) 2021
- IJCAI Workshop on Artificial Intelligence for Education (AI4EDU) 2021

Program Committee Member & Conference Reviewer

- Annual Meeting of the Association for Computational Linguistics (ACL) 2025-2026
- Conference on Empirical Methods in Natural Language Processing (EMNLP) 2025-2026
- International Conference on Learning Representations (ICLR) 2025-2026
- Annual Conference on Neural Information Processing Systems (NeurIPS) 2024-2026
- AAAI Conference on Artificial Intelligence (AAAI) 2024-2026
- International Conference on Acoustics, Speech and Signal Processing (ICASSP)2024-2026
- International Conference on Artificial Intelligence in Education (AIED) 2025

Journal Reviewer

- Transactions on Knowledge Discovery from Data (TKDD) 2023-2025
- Transactions on Knowledge and Data Engineering (TKDE) 2023-2025

Conference External Reviewer

- ACM Web Conference (WWW) 2023
- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2023
- Conference on Information and Knowledge Management (CIKM) 2023