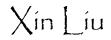✉ xliucr@amazon.com
⌂ https://seanliu96.github.io/
🔍 https://scholar.google.com/citations?user=WvC4upQAAAAJ
in https://www.linkedin.com/in/xin-liu-179830143

Xin Liu

Applied Scientist, Amazon Search/A9

Job Duties: Research and Development on Foundation Models and E-commerce Intention Understanding
Research Interests: Natural Language Understanding and Large Language Model Reasoning

Education

Aug. 2018 - July 2023	🔖 **Ph.D. Degree** at Department of Computer Science and Engineering, Hong Kong University of Science and Technology, Hong Kong SAR, supervised by Prof. Yangqiu Song GPA:3.9/4.3
Aug. 2014 - June 2018	🔖 **B.E. Degree** at Department of Computer Science, Sun Yat-sen University, China, supervised by Prof. Rong Pan 3 National Scholarships GPA:4.2/5.0

Publications

* means equal contribution.
Journal Articles

1 Zhongwei Wan, **Xin Liu**, Benyou Wang, Jiezhong Qiu, Boyu Li, Ting Guo, Guangyong Chen and Yang Wang. 'Spatio-Temporal Contrastive Learning Enhanced GNNs for Session-based Recommendation', 2023.

2 Hongming Zhang*, **Xin Liu***, Haojie Pan*, Haowen Ke, Jiefu Ou, Tianqing Fang and Yangqiu Song. 'ASER: Towards Large-scale Commonsense Knowledge Acquisition via Higher-order Selectional Preference over Eventualities'. *Artificial Intelligence (AIJ)*, 2022.

Conference Publications

1 Weiqi Wang*, Tianqing Fang*, Wenxuan Ding, Baixuan Xu, **Xin Liu**, Yangqiu Song and Antoine Bosselut. 'CAR: Conceptualization-Augmented Reasoner for Zero-Shot Commonsense Question Answering'. In *Findings of the Association for Computational Linguistics (Findings of EMNLP)*. 2023.

2 Haochen Shi*, Weiqi Wang*, Tianqing Fang, Baixuan Xu, Wenxuan Ding, **Xin Liu** and Yangqiu Song. 'QaDynamics: Training Dynamics-Driven Synthetic QA Diagnostic for Zero-Shot Commonsense Question Answering'. In *Findings of the Association for Computational Linguistics (Findings of EMNLP)*. 2023.

3 Zheye Deng, Weiqi Wang, Zhaowei Wang, **Xin Liu** and Yangqiu Song. 'Gold: A Global and Local-aware Denoising Framework for Commonsense Knowledge Graph Noise Detection'. In *Conference on Neural Information Processing Systems (NeurIPS)*. 2023.

4 **Xin Liu**, Zheng Li, Yifan Gao, Jingfeng Yang, Tianyu Cao, Zhengyang Wang, Bing Yin and Yangqiu Song. 'Enhancing User Intent Capture in Session-Based Recommendation with Attribute Patterns'. In *Conference on Neural Information Processing Systems (NeurIPS)*. 2023.

5 Jiaxin Bai, **Xin Liu**, Weiqi Wang, Chen Luo and Yangqiu Song. 'Complex Eventuality Reasoning with Implicit Logical Constraints'. In *Conference on Neural Information Processing Systems (NeurIPS)*. 2023.

6 Hejie Cui, Xinyu Fang, Zihan Zhang, Ran Xu, Xuan Kan, **Xin Liu**, Yue Yu, Manling Li, Yangqiu Song and Carl Yang. 'Open Visual Knowledge Extraction via Relation-Oriented Multimodality Model Prompting'. In *Conference on Neural Information Processing Systems (NeurIPS)*. 2023.

7 Chunkit Chan, **Xin Liu**, Tsz Ho Chan, Jiayang Cheng, Yangqiu Song, Ginny Y. Wong and Simon See. 'Self-Consistency Narrative Prompts on Abductive Natural Language Inference'. In *Conference of the Asia-Pacific Chapter of the Association for Computational Linguistics (AACL)*. 2023.

8 Chunkit Chan*, **Xin Liu***, Jiayang Cheng, Zihan Li, Yangqiu Song, Ginny Y. Wong and Simon See. 'DiscoPrompt: Path Prediction Prompt Tuning for Implicit Discourse Relation Recognition'. In *Findings of Annual Meeting of the Association for Computational Linguistics (Findings of ACL)*. 2023.

9 Changlong Yu, Weiqi Wang, **Xin Liu**, Jiaxin Bai, Yangqiu Song, Zheng Li, Yifan Gao, Tianyu Cao and Bing Yin. 'FolkScope: Intention Knowledge Graph Construction for Discovering E-commerce Commonsense'. In *Findings of Annual Meeting of the Association for Computational Linguistics (Findings of ACL)*. 2023.

10 Huiru Xiao, **Xin Liu**, Yangqiu Song, Ginny Y. Wong and Simon See. 'Complex Hyperbolic Knowledge Graph Embeddings with Fast Fourier Transform'. In *Proceedings of Conference on Empirical Methods in Natural Language Processing (EMNLP)*. 2022.

11 **Xin Liu**, Jiayang Cheng, Yangqiu Song and Xin Jiang. 'Boosting Graph Structure Learning with Dummy Nodes'. In *Proceedings of International Conference on Machine Learning (ICML)*. 2022.

12 **Xin Liu** and Yangqiu Song. 'Graph Convolutional Networks with Dual Message Passing for Subgraph Isomorphism Counting and Matching'. In *Proceedings of AAAI Conference on Artificial Intelligence (AAAI)*. 2022.

13 **Xin Liu**, Jiefu Ou, Yangqiu Song and Xin Jiang. 'Exploring Discourse Structures for Argument Impact Classification'. In *Proceedings of Annual Meeting of the Association for Computational Linguistics (ACL)*. 2021.

14 **Xin Liu**, Haojie Pan, Mutian He, Yangqiu Song, Xin Jiang and Lifeng Shang. 'Neural Subgraph Isomorphism Counting'. In *Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*. 2020.

15 **Xin Liu**, Jiefu Ou, Yangqiu Song and Xin Jiang. 'On the Importance of Word and Sentence Representation Learning in Implicit Discourse Relation Classification'. In *Proceedings of International Joint Conference on Artificial Intelligence (IJCAI)*. 2020.

16 Hongming Zhang*, **Xin Liu***, Haojie Pan*, Yangqiu Song and Cane Wing-Ki Leung. 'ASER: A Large-scale Eventuality Knowledge Graph'. In *The Web Conference (WWW)*. 2020.

17 Huiru Xiao, **Xin Liu** and Yangqiu Song. 'Efficient Path Prediction for Semi-Supervised and Weakly Supervised Hierarchical Text Classification'. In *The Web Conference (WWW)*. 2019.

18 Jie Huang, **Xin Liu** and Yangqiu Song. 'Hyper-Path-Based Representation Learning for Hyper-Networks'. In *Proceedings of ACM International Conference on Information and Knowledge Management (CIKM)*. 2019.

19 Yan Liang, **Xin Liu**, Jianwen Zhang and Yangqiu Song. 'Relation Discovery with Out-of-Relation Knowledge Base as Supervision'. In *Proceedings of Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL)*. 2019.

20 Ziqian Zeng, Wenxuan Zhou, **Xin Liu** and Yangqiu Song. 'A Variational Approach to Weakly Supervised Document-Level Multi-Aspect Sentiment Classification'. In *Proceedings of Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL)*. 2019.

21 Ziqian Zeng*, **Xin Liu*** and Yangqiu Song. 'Biased Random Walk based Social Regularization for Word Embeddings'. In *Proceedings of International Joint Conference on Artificial Intelligence (IJCAI)*. 2018.

Preprints and Manuscripts

1 **Xin Liu**, Weiqi Wang, Jiaxin Bai and Yangqiu Song. 'Towards Subgraph Isomorphism Counting with Graph Kernels'. 2023 (**Underreview**).

2 Chunkit Chan, **Xin Liu**, Jiayang Cheng, Yuxin Jiang, Yangqiu Song, Ginny Wong and Simon See. 'Persona Knowledge-Aligned Prompt Tuning Method for Online Debate'. 2023 (**Underreview**).

3 Changlong Yu, **Xin Liu**, Zheng Li, Jefferson Maia, Tianyu Cao, Yifan Gao, Yana Petrova et al. 'Instruction Tuning for Learning Scalable E-commerce Intention from Massive User Behaviors'. 2023 (**Underreview**).

4 Jiayang Cheng, Lin Qiu, **Xin Liu**, Yangqiu Song and Zheng Zhang. 'Narrative Reasoning by Grounding to Event-centric Knowledge Graphs'. 2023 (**Underreview**).

5 Chunkit Chan, Jiayang Cheng, Weiqi Wang, Yuxin Jiang, Tianqing Fang, **Xin Liu** and Yangqiu Song. 'ChatGPT Evaluation on Sentence Level Relations: A Focus on Temporal, Causal, and Discourse Relations'. 2023. arXiv: 2304.14827.

Awards

2022	▌ HKUST RedBird Academic Excellence Award for Continuing PhD Students
2020	▌ HKUST CSE Professor Samuel Chanson Best Teaching Assistant Award
	▌ HKUST SENG Academic Award for Continuing PhD Students
2018	▌ SYSU Outstanding Graduate
	▌ SYSU Outstanding Graduate Thesis
	▌ The First Prize, Guangdong Collegiate Programming Contest
2017	▌ Top 10, Tencent social advertising college algorithm competition
	▌ Meritorious Winner, Mathematical Contest in Modeling / Interdisciplinary Contest in Modeling
2015, 2016, 2017	▌ National Scholarship $\times 3$

Experience

Fulltime

Aug. 2023 - Present   ◪ **Applied Scientist (Foundations)** [Manager: Dr. Yi Xu], Foundations, Amazon Search, Palo Alto, United States.

Internship

June 2022 - Dec. 2022   ◪ **Research Intern (Search)** [Mentor: Dr. Zheng Li], Search Mission Understanding, Amazon Search, Palo Alto, United States.

Jan. 2018 - July 2018   ◪ **Research Assistant (Text Mining)** [Mentor: Prof. Yangqiu Song], Knowledge Computation Group, Hong Kong University of Science and Technology, Hong Kong SAR.

June 2017 - Dec. 2017   ◪ **Research Intern (Cloud Graph Database)** [Mentor: Dr. Liang Jeff Chen], Cloud & Mobile Group, Microsoft Research Asia, Beijing, China.

Teaching Assistant

Feb. 2022 - May 2022   ◪ **Teaching Assistant**, Natural Language Processing (MSBD5018), Hong Kong University of Science and Technology, Hong Kong SAR

Feb. 2021 - June 2021   ◪ **Teaching Assistant**, Natural Language Processing (MSBD6000H), Hong Kong University of Science and Technology, Hong Kong SAR

Feb. 2020 - June 2020   ◪ **Teaching Assistant**, Big Data Mining (COMP4332/RMBI4310), Hong Kong University of Science and Technology, Hong Kong SAR

Feb. 2019 - May 2019   ◪ **Teaching Assistant**, Big Data Mining (COMP4332/RMBI4310), Hong Kong University of Science and Technology, Hong Kong SAR

Sept. 2018 - Dec. 2018   ◪ **Teaching Assistant**, Machine Learning for Natural Language Processing (COMP4901K/MATH4824B), Hong Kong University of Science and Technology, Hong Kong SAR

Academic

◪ **Journal Reviewer**: DMKD'23, TKDE'22,23

◪ **Program Committee Member**: CIKM'19,21,22,23   IJCAI'21,22,23   AAAI'21,22,23,24   NAACL'22   ACL ARR'22,23   ICML'22   SIGKDD'22,23   NeurIPS'22,23   ICLR'24

◪ **External Reviewer**: ACL'19   EMNLP'19   IJCAI'19,20   SIGKDD'19,20,21

◪ **Volunteer**: Baidu World Conference'16   IJCAI'18,19,20   NAACL'19   SIGKDD'20

Projects

2022   ◪ FolkScope (open-source version on GitHub): the first commonsense knowledge graph for Amazon built upon co-purchase data (during the internship at Amazon Search)

2019-2022   ◪ ASER (GitHub, Homepage): the first large-scale eventuality knowledge graph based on discourse relations (during the PhD study at HKUST)

2017   ◪ GraphView (open-source version on GitHub): the first distributed graph database, which is an important part of Microsoft Azure (during the internship at MSRA)