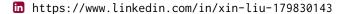
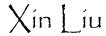
- ♠ https://seanliu96.github.io/
- Q https://scholar.google.com/citations?user=WvC4upQAAAAJ





### 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 Outstanding Graduate Hornor with 3 National Schorlarships GPA:4.2/5.0

## **Publications**

\* means equal contribution.

### **Journal Articles**

1 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 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.
- 2 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.
- 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.
- 4 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.
- **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.
- 6 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.
- 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.
- 8 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.
- 9 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.
- 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.
- III 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.
- 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.

- 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.
- 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, 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'. 2023 (Underreview).
- 2 Xin Liu, Weiqi Wang, Jiaxin Bai and Yangqiu Song. 'Towards Subgraph Isomorphism Counting with Graph Kernels'. 2023 (Underreview).
- Jiaxin Bai, Xin Liu, Weiqi Wang, Chen Luo and Yangqiu Song. 'Complex Eventuality Reasoning with Implicit Logical Constraints'. 2023. arXiv: 2305.19068.
- 4 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'. 2023 (Underreview).
- 5 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).
- 6 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).
- Zhongwei Wan, Xin Liu, Benyou Wang, Jiezhong Qiu and Guangyong Chen. 'Spatio-Temporal Contrastive Learning Enhanced GNNs for Session-based Recommendation'. 2023 (Underreview).
- Jiangyang Cheng, Lin Qiu, Xin Liu, Yangqiu Song and Zheng Zhang. 'Narrative Reasoning by Grounding to Event-centric Knowledge Graphs'. 2023 (Underreview).
- 2 Ziqian Zeng, Weimin Ni, Wenxuan Zhou, Xin Liu, Zizheng Lin, Yangqiu Song, Michael David Kuo and Wan Hang Keith Chiu. 'A Variational Approach to Weakly Supervised Sentiment Analysis'. 2023 (Underreview).
- 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'. 2023 (Underreview).
- Hejie Cui, Xinyu Fang, Zihan Zhang, Ran Xu, Xuan Kan, **Xin Liu**, Manling Li, Yangqiu Song and Carl Yang. 'Open Visual Knowledge Extraction via Relation-Oriented Multimodality Model Prompting'. 2023 (**Underreview**).
- 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'. 2023. arXiv: 2305.14869.
- 13 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'. 2023 (Underreview).
- 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 MKUST RedBird Academic Excellence Award for Continuing PhD Students

2020 R 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 ×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 IJCAl'21,22,23 AAAl'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**

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)

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