Qi Song

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Work Experience

2022.11-now	**(Pre-tenure) Professor**, *University of Science and Technology of China*, Hefei, China.
2022.01-2022.10	**Associate Professor**, *University of Science and Technology of China*, Hefei, China.
2020.04-2022.01	**Applied Scientist**, *Amazon.com*, Seattle.

Education

2015.05-2020.04	**Phd**, *School of Electrical Engineering and Computer Science, Washington State University, Major: Computer science*, Mentor: Prof. Yinghui Wu.
2012.09–2015.02	**Master**, *School of Computer Science and Engineering, Beihang University, Major: Computer science*, Mentor: Prof. Jinpeng Huai.
2008.09–2012.07	**Bachelor**, *School of Computer Science and Engineering, Beihang University, Major: Computer science*.

Research Interests

Data Mining	(Distributed) graph data mining, (temporal) graph query models and languages, knowledge graph query and completion.
Machine Learning	Deep learning (e.g., deep neural network models like CNN and RNN) for graph analysis (e.g., ranking, anomaly detection).

Research Experience

2015 - 2020	Research Assistant, Washington State University, Supervisor: Prof. Yinghui Wu. **Research topic: Towards User-friendly Graph Exploration**.
2019 summer	Applied scientist intern, Amazon.com **Research topic: Time fixed effects for long-running experiments**.
2018 summer	Intern research assistant, JD AI Research, Silicon Valley, Mentor: Dr. Wei Li, Jin Guo and (Martin) Congmin Min. **Research topic: user prompt generation for online e-commerce dialogue system**.
2017 summer	Intern research assistant, NEC labs America, Mentor: Dr. Bo Zong. **Research topic: unsupervised anomaly detection model for network attack detection**.
2016 summer	Intern research assistant, NEC labs America, Mentor: Dr. Bo Zong. **Research topic: temporal graph ranking for system log analysis**.

Publications

(36) 2025   Can Lin, Zhengwang Jiang, Ling Zheng, Qi Zhao, Yuhang Zhang, Qi Song, Wangqiu Zhou, *"RJE: A Retrieval-Judgment-Exploration Framework for Efficient Knowledge Graph Question Answering with LLMs. "*, The Conference on Empirical Methods in Natural Language Processing (**EMNLP**), 2025.

(35) 2025   Yiming Xu, Qi Song, Yihan Wang, Wangqiu Zhou and Junli Liang, *"LGC-CR: Few-shot Knowledge Graph Completion via Local Global Contrastive Learning and LLM-Guided Refinement."*, The Conference on Information and Knowledge Management (**CIKM**), 2025.

(34) 2025   Ling Zheng, Qi Song, Yihan Wang, Zhitao Wang, Xiang-Yang Li, *"HE-GAD: A Behavior-Enhanced Contrastive Learning Framework for Graph Anomaly Detection."*, Machine Learning (**ECML-PKDD Journal Track**), 2025.

(33) 2025   Yihan Wang, Qi Song, Ling Zheng, Xiang-Yang Li, *"Efficient and Tractable Conflict Detection in Knowledge Graphs via Path Analysis."*, IEEE Transactions on Big Data (**TBD**), 2025.

(32) 2025   Xin-Wei Yao, Junfeng Bai, Chuan He, Qiang Li, Qi Song, *"Leveraging Contrastive Learning to Bridge Semantic Gaps in Multimodal Recommendation."*, International Conference on Intelligent Computing (**ICIC**), 2025.

(31) 2025   Pengfei Zhou, Yunlong Liu, Junli Liang, Qi Song, Xiangyang Li, *"CrossLinear: Plug-and-Play Cross-Correlation Embedding for Time Series Forecasting with Exogenous Variables."*, Proceedings of the 31th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**), 2025.

(30) 2025   Xinyu Wang, Shenyao Jiang, Wangqiu Zhou, Hao Zhou, Zhi Liu, Qi Song, Yusheng Ji, *"In-Band Parallel Feedback Communication for Magnetic MIMO Wireless Power Transfer System."*, IEEE Wireless Communications Magazine, 2025.

(29) 2025   Xinyu Wang, Wangqiu Zhou, Hao Zhou, Shenyao Jiang, Zhi Liu, Xiaoyan Wang, Yusheng Ji, Qi Song, *"Relip: Reliable In-Band Parallel Communication for Magnetic MIMO Wireless Power Transfer System."*, IEEE Transactions on Mobile Computing (**TMC**), 2025.

(28) 2025   Qi Zhao, Qi Song, Tian Xie, Haiyue Zhang, Hongyu Yang, Xiangyang Li, *"Improving Pretrained Language Models with Knowledge Enhancement and Filtering Framework."*, Annual Conference of the Nations of the Americas Chapter of the Association for Computational Linguistics (**NAACL**), 2025.

(27) 2025   Pengfei Zhou, Junli Liang, Yunlong Liu, Ji Wu, Qi Song, Xiangyang Li, *"Capacity estimation of retired lithium-ion batteries using random charging segments from massive real-world data."*, Cell Reports Physical Science (**CRPS**), 2025.

(26) 2025   Xinyu Wang, Wangqiu Zhou and Hao Zhou, Tianjian Yang, Shenyao Jiang, Zhi Liu, Yusheng Ji, Qi Song, *"Fast and Anti-starvation Charging Device Grouping for Magnetic Wireless Power Transfer."*, IEEE International Conference on Computer Communications (**INFOCOM**), 2025.

(25) 2024   Xin-Wei Yao, Wei-Wei Xing, Ke-Chen Zheng, Chu-Feng Qi, Xiang-Yang Li, Qi Song, *"GTDIM: Grid-based Two-stage Dynamic Incentive Mechanism for Mobile Crowd Sensing."*, Pervasive and Mobile Computing (**PMC**), 2024.

(24) 2024   Tian Xie, Qi Song, Qi Zhao, Hao Jiang, Yijie Li, Tongjing Zhu, *"Query Exploration based on Knowledge Reasoning."*, International Conference on Advanced Data Mining and Applications (**ADMA**), 2024.

(23) 2024   Lingchang Kong, Xinyu Wang, Hao Zhou, Fengyu Zhou, Shenyao Jiang, Peide Zhu, Qi Song, Zhi Liu, *"LAORA: Location-Aware Orientation Adjustment for MIMO Magnetic Wireless Charging System"*, IEEE International Conference on Sensing, Communication, and Networking (**SECON**), 2024.

(22) 2023   Miao-Hui Song, Lan Zhang, Mu Yuan, Zichong Li, Qi Song, Yijun Liu and Guidong Zheng, *"CoTel: Ontology-Neural Co-Enhanced Text Labeling"*, ACM The Web Conference (**WWW**), 2023.

(21) 2023   Hanchao Ma, Sheng Guan, Mengying Wang, Qi Song, Yinghui Wu, *"Fair Group Summarization with Graph Patterns"*, IEEE International Conference on Data Engineering (**ICDE**), 2023.

(20) 2023   Zichong Li, Lan Zhang, Mu Yuan, Miao-Hui Song, **Qi Song**, *"Efficient Deep Ensemble Inference via Query Difficulty-dependent Task Scheduling"*, IEEE International Conference on Data Engineering (**ICDE**), 2023.

(19) 2022   **Qi Song**, Mohammad Hossein Namaki, Peng Lin, Yinghui Wu, *"Answering Why-Questions for Subgraph Queries"*, Accepted by IEEE Transactions on Knowledge and Data Engineering (**TKDE**), 34(10), 4636-4649, (2022).

(18) 2021   **Qi Song**, Peng Lin, Hanchao Ma, Yinghui Wu, *"Explaining Missing Data in Graphs: A Constraint-based Approach"*, IEEE International Conference on Data Engineering (**ICDE**), 2021.

(17) 2021   **Qi Song**, Hanchao Ma, Peng Lin, Yinghui Wu, *"GRIP: Constraint-based Explanation of Missing Entities in Graph Search"*, ACM SIGMOD Conference on Management of Data (**SIGMOD(demo)**), 2021.

(16) 2020   Peng Lin**, Qi Song,** Yinghui Wu, *"Repairing Entities using Star Constraints in Multirelational Graphs"*, IEEE International Conference on Data Engineering (**ICDE**), 2020.

(15) 2019   Mohammad Hossein Namaki**, Qi Song,** Yinghui Wu, Shengqi Yang, *"Answering Why-questions by Exemplars in Attributed Graphs"*, ACM SIGMOD Conference on Management of Data (**SIGMOD**), 2019.

(14) 2019   Mohammad Hossein Namaki**, Qi Song,** Yinghui Wu, Jiaxing Pi, *"NAVIGATE: Explainable Visual Graph Exploration by Examples"*, ACM SIGMOD Conference on Management of Data (**SIGMOD (demo)**), 2019.

(13) 2019   **Qi Song,** Mohammad Hossein Namaki, Yinghui Wu, *"Answering Why-Questions for Subgraph Queries in Multi-Attributed Graphs"*, IEEE International Conference on Data Engineering (**ICDE**), 2019.

(12) 2018   **Qi Song,** Bo Zong, Yinghui Wu, Lu-An Tang, Hui Zhang, Guofei Jiang and Haifeng Chen, *"TGNet: Learning to Rank Nodes in Temporal Graphs"*, ACM International Conference on Information and Knowledge Management (**CIKM**), 2018.

(11) 2018   Peng Lin, **Qi Song,** Jialiang Shen, Yinghui Wu, *"Discovering Graph Patterns for Fact Checking in Knowledge Graphs"*, International Conference On Database Systems for Advanced Applications(**DASFAA**), 2018.

(10) 2018   Bo Zong, **Qi Song,** Martin Renqiang Min, Wei Cheng, Cristian Lumezanu, Daeki Cho, Haifeng Chen, *"Deep Autoencoding Gaussian Mixture Model for Unsupervised Anomaly Detection"*, International Conference on Learning Representations(**ICLR**), 2018.

(9) 2018   **Qi Song,** Yinghui Wu, Peng Lin, Xin Luna Dong, Hui Sun, *"Mining Summaries for Knowledge Graph Search"*, IEEE Transactions on Knowledge and Data Engineering (**TKDE**), 30(10), 1887-1900, (2018).

(8) 2018   Peng Lin, **Qi Song,** Yinghui Wu, *"Discovering Patterns for Fact Checking in Knowledge Graphs"*, Journal of Data and Information Quality(**JDIQ**), 2018.

(7) 2018   Peng Lin, **Qi Song,** Yinghui Wu, *"Fact Checking in Knowledge Graphs with Ontological Subgraph Patterns",* Data Science and Engineering(**DSE**), 2018.

(6) 2018   Wei Cai, Baochun He, Min Hu, Wenyu Zhang, Deqiang Xiao, Hao Yu, Nan Xiang, Jian Yang, **Qi Song,** Songsheng He, Yaohuan Huang, Wenjie Huang, Fucang Jia, Chi-hua Fang, *"A radiomics-based Nomogram for the Preoperative Prediction of Posthepatectomy Liver Failure in Patients with Hepatocellular Carcinoma",* Surgical Oncology(**SO**), 2018.

(5) 2017   Mohammad Hossein Namaki, Yinghui Wu, **Qi Song,** Peng Lin, Tingjian Ge, *"Discovering Temporal Graph Association Rules",* ACM International Conference on Information and Knowledge Management (**CIKM**), 2017.

(4) 2017   **Qi Song,** Mohammad Hossein Namaki, Peng Lin, Yinghui Wu, *"Parallel Graph Summarization for Knowledge Search",* 13th International Workshop on Mining and Learning with Graphs (**MLG**), 2017.

(3) 2016   **Qi Song,** Yinghui Wu, Xin Luna Dong, *"Mining Summaries for Knowledge Graph Search",* IEEE International Conference on Data Mining (**ICDM**), 2016.

(2) 2014   **Qi Song,** Bo Li, Weiren Yu, Jianxin Li, Bin Shi, *"NSLPA: A node similarity based label propagation algorithm for real-time community detection",* IEEE International Conference on Utility and Cloud Computing (**UCC**), 2014.

(1) 2013   Jianxin Li, **Qi Song,** Weiren Yu, Chunming Hu, Jian Kang, *"iScreen: A Merged Screen of Local System with Remote Applications in a Mobile Cloud Environment",* IEEE International Symposium on Service Oriented System Engineering (**SOSE**), 2013.

Patents - before 2020

(6)   **Qi Song,** Congmin Min, Jin Guo, Wei Li, *"System and method for intelligent guided shopping",* US Patent 16,296,169, Status: **Granted**.

(5)   Bo Zong, Daeki Cho, Cristian Lumezanu, Haifeng Chen, **Qi Song**, *"Density estimation network for unsupervised anomaly detection",* US Patent 10,999,247, Status: **Granted**.

(4)   Bo Zong, LuAn Tang, **Qi Song,** Biplob Debnath, Hui Zhang, Guofei Jiang, *"Discovering critical alerts through learning over heterogeneous temporal graphs",* US Patent 10,409,669, Status: **Granted**.

(3)   Bo Li, **Qi Song,** Jianxin Li, Weiren Yu, *"Data segmenting method and system of distributed graph calculating system",* Publication No. : CN104281664B, Status: **Granted**.

(2)   Jianxin Li, Weiren Yu, **Qi Song,** Chenggen Sun, Bo Wu, *"Desktop presenting method based on cloud",* Publication No. : CN103595759B, Status: **Granted**.

(1)   Chunming Hu, Weiren Yu, **Qi Song,** Chenggen Sun, Bo Wu, *"File picture sharing method based on cloud",* Publication No. : CN103595760B, Status: **Granted**.

Awards

2024.06	**2023 ACM China Council Hefei Chapter Rising Star**.
2022.12	**Mozi distinguished youth from USTC**.
2019.04	**NSF Student Travel Award for SIGMOD 2019**.
2019.04	**NSF Student Travel Award for ICDE 2019**.
2017.11	**SIGIR Student Travel Award for CIKM 2017**.
2016.11	**NSF Student Travel Award for ICDM 2016**.
2015 & 2016	**NSF Travel support for NSF Graduate Data Science Workshop 2015, 2016**.
2014.11	**MediaTek Inc. - Beihang Univ. Science and Technology Award**.

Services

SPC	**CIKM'23**.
PC	**DASFAA'24,AAAI'23/24,ECAI'23**.
Journal Reviewer	**TPAMI, TDSC, TKDE, VLDBJ, JAIR, TNNLS, JDIQ, TBD, JCST, PR, ML, JAIR**.
Conference Reviewer	**VLDB, SIGMOD, ICDE, KDD, Big Data**.