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

(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

(14)   Xiaofu Wang, ..., **Qi Song, ...,** *"Closed-loop deamination control system based on machine learning",* Publication No. : CN116185087A, Status: Application.

(13)   Xiaofu Wang, ..., **Qi Song, ...,** *"Spray cooling control system based on infrared imaging",* Publication No. : CN116185095A, Status: Application.

(12)   Xiaofu Wang, ..., **Qi Song, ...,** *"Intelligent control system for ignition furnace of sintering machine",* Publication No. : CN116182564A, Status: Application.

(11)   Bei Hua, Yinhao Dong, **Qi Song**, *"A semantic informativeness based multi-modal data fusion method and application",* Publication No. : CN115470856A, Status: Application.

(10)   **Qi Song,** etc.., *"A graph database query optimization method and system for users",* Publication No. : CN112765411A, Status: Application.

(9)   **Qi Song,** etc.., *"A summary display method for dynamic graph data",* Publication No. : CN112765412A, Status: Application.

(8)   **Qi Song,** etc.., *"A query and recommend method for graph data based on user features",* Publication No. : CN112765413A, Status: Application.

(7)   **Qi Song,** etc.., *"A generation method and storage media for graph data summary",* Publication No. : CN112765417A, Status: Application.

(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

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