Qian Liu

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Education

Beihang University 2017.9 – 2022.6 (Expected)

Ph.D. in Computer Science and Engineering ♣ Joint Program with Microsoft Research Asia
Ph.D. Supervisor: Bin Zhou ♣ Co-advisor: Jian-Guang Lou

Beihang University 2013.9 – 2017.6

B.S. in Computer Science and Technology, Ranking 7 / 233

Experience

Microsoft Research Asia, Beijing, China 2018.2 – Present

Research Intern at *Data, Knowledge and Intelligence* Group ♢ Mentor: Jian-Guang Lou & Bei Chen

Microsoft Research Asia, Beijing, China 2016.7 – 2017.8

Research Intern at *Big Data Mining* Group ♢ Mentor: Zaiqing Nie & Yohn Cao

Microsoft Asia-Pacific R&D Group, Beijing, China 2016.5 – 2016.7

Development Intern at *Operating System* Group ♢ Mentor: Jianwei Zhu

Research Interests

- **Conversational Semantic Parsing**: *Focusing on techniques to improve conversational semantic parsing.*
- **Reinforcement Learning**: *Focusing on applying reinforcement learning on various NLP applications.*

Publications

- **Qian Liu**, Bei Chen, Jiaqi Guo, Jian-Guang Lou, Bin Zhou and Dongmei Zhang, How Far are We from Effective Context Modeling? An Exploratory Study on Semantic Parsing in Context. In *29th International Joint Conference on Artificial Intelligence* (IJCAI-2020)
- Yu Zeng, Yan Gao, Jiaqi Guo, Bei Chen, **Qian Liu**, Jian-Guang Lou, Fei Teng, Dongmei Zhang, RECPARSER: A Recursive Semantic Parsing Framework for Text-to-SQL Task. In *29th International Joint Conference on Artificial Intelligence* (IJCAI-2020)
- **Qian Liu**, Yihong Chen, Bei Chen, Jian-Guang Lou, Zixuan Chen, Bin Zhou, Dongmei Zhang, You Impress Me: Dialogue Generation via Mutual Persona Perception. In *58th Annual Meeting of the Association for Computational Linguistics* (ACL-2020)
- **Qian Liu**, Bei Chen, Haoyan Liu, Lei Fang, Jian-Guang Lou, Bin Zhou, Dongmei Zhang, A Split-and-Recombine Approach for Follow-up Query Analysis. In *Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing* (EMNLP-2019)
- Haoyan Liu, Lei Fang, **Qian Liu**, Bei Chen, Jian-Guang Lou, Zhoujun Li, Leveraging Adjective-noun Phrasing Knowledge for Comparison Relation Prediction in Text-to-SQL. In *Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing* (EMNLP-2019)
- **Qian Liu**, Bei Chen, Jian-Guang Lou, Ge Jin, Dongmei Zhang, FANDA: A Novel Approach to Perform Follow-up Query Analysis. In *33th AAAI Conference on Artificial Intelligence* (AAAI-2019)

Preprints

- **Qian Liu***, Shengnan An*, Jian-Guang Lou, Bei Chen, Zeqi Lin, Yan Gao, Bin Zhou, Nanning Zheng, Dongmei Zhang, Compositional Generalization by Learning Analytical Expressions (Submitted to NeurIPS-2020, * = equal contribution)

Research Projects

- **Compositional Generalization** 2020.2 – 2020.6
  Compositional generalization is a basic but essential intellective capability of human beings. However, existing neural models have been proven to be extremely deficient in such a capability. To tackle it, we propose a novel memory-augmented neural model. Specifically, our model is the first neural model to pass all compositional challenges addressed by previous works without extra resources. As one of the main contributor, I contribute a practical model structure and a steady training algorithm.
- **Personalized Dialogue Generation** 2019.3 – 2019.9
  Personalized Dialogue Generation is a research hot-spot in the field of dialogue generation in recent years. In this project, we build a personalized dialogue generation model which highlights a novel concept *mutual persona perception*. Human evaluation results demonstrate that our system surpasses strong baselines, with the ability to generate interesting responses. I am the main contributor, contributing data processing, model design, system implementation and working on experiments.
- **Conversational Semantic Parsing** 2018.2 – Present
  This ongoing research project is born out of demand from Microsoft products, which aims to develop a conversational semantic parsing system to help common users to analyze tabular data through natural language conversations. To improve the accuracy of our system, we explore various context modeling techniques (query rewriting, turn-level encoding, tree-based copy mechanism). As the owner of this project, I am responsible for algorithm design, system implementation, and working on experiments.

Skills

- Programming Languages: Python > C# > JavaScript = C++
- Deep Learning Tools: AllenNLP = PyTorch > Tensorflow
- Development: Machine Learning > Web Development > Front End

Honors & Awards

Graduate Student National Scholarship	2019
Graduate Student First Class Scholarship	2017, 2018, 2019
Stars of Tomorrow Internship Award of Microsoft Research Asia	2017
Beijing Outstanding Graduate Awards	2017
Dean's Special Award	2017
Samsung Scholarship	2015
First Class Scholarship	2015