Guanghui Qin

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Education

Johns Hopkins University Maryland, US
Ph.D. in Computer Science (Advisor: Benjamin Van Durme) *Aug 2019 – Summer 2024 (expected)*

Peking University Beijing, China
B.S. in Physics & Computer Science *Sept 2015 – Jun 2019*

Research Experience

Microsoft Research Lab (MSR) Washington, US
Research Intern (Mentor: Corby Rosset) *May 2023 – Aug 2023*

- Proposed Nugget2D, a *context compression* method for *large language models*.
- Applied Nugget2D to downstream tasks, achieving *a 20x compression rate* with minimal performance tradeoff.

Semantic Machines, Microsoft Remote, US
Research Intern (Mentor: Anthony Platanios) *May 2022 – Aug 2022*

- Studied a new research problem for *user action predictions* and built a dataset from GitHub.
- Implemented *graph neural networks* baseline to learn the references between texts and entities.

Center for Language and Speech Processing, Johns Hopkins Univ. Maryland, US
Visiting Researcher (Mentor: Hongyuan Mei and Jason Eisner) *Jun 2018 – Oct 2018*

- Worked on a *particle smoothing* solution for *neural Hawkes process*, a method for temporal event sequence modeling.
- A framework that enables *neural Hawkes process* to interact with the database through *Datalog*.

Microsoft Research, Asia (MSRA) Beijing, China
Research Intern (Mentor: Jin-Ge Yao and Chin-Yew Lin) *Nov 2017 – Jun 2018*

- Proposed a *Semi-HMMs* based model for grounding natural language to structured data.
- Implemented a demo to induce templates from the corpus for *data-to-text generation*.

Awards & Scholarships

- Best Short Paper Awardee in NAACL 2021 — Association for Computational Linguistics (ACL), *2021*
- Outstanding Reviewer — Association for Computational Linguistics (ACL), *2019*
- May 4th Scholarship — Peking University, *2016 and 2018*
- Silver medalist — Chinese Physics Olympiad (CPhO), *2014*

Skills & Non-rearch Experience

- Programming languages: Python, JAVA, Rust, and C/C++. Other languages: Tex, Shell script, SQL.
- Machine learning framework: PyTorch, Lightning AI, and DeepSpeed.
- Network engineering: Since 2017, I've been developing and funding WallessPKU, a non-profit anti-censorship project with more than 37k users, to help students to circumvent The Great Firewall in China.

Academic Service

I serve as a reviewer for the conferences of NeurIPS (2019 and 2020 as secondary; 2021 to 2023), ICLR (2019 and 2020 as secondary; 2021, 2023, and 2024), ICML (2020 and 2021), ACL (2021), EMNLP (2019 to 2022; *outstanding reviewer award* in 2019), NAACL (2024), AAAI (2021), and AKBC (2020 as secondary).

PUBLICATIONS

- Researchy Questions: A dataset of multi-perspective, decompositional questions for LLM web agents.
  Corby Rosset, Ho-Lam Chung, **Guanghui Qin**, Ethan C. Chau, Zhuo Feng, Ahmed Hassan Awadallah, Jennifer Neville, Nikhil Rao. In *arXiv*. 2024.
- Streaming Sequence Transduction through Dynamic Compression.
  Wenting Tan, Yunmo Chen, Tongnfei Chen, **Guanghui Qin**, Haoran Xu, Heidi C Zhang, Benjamin Van Durme, Phillip Koehn. In *arXiv*. 2024.
- Nugget2D: Dynamic Contextual Compression for Scaling Decoder-only Language Models.
  Guanghui Qin, Corby Rosset, Ethan C. Chau, Nikhil Rao, Benjamin Van Durme. In *arXiv*. 2023.
- Nugget: Neural Agglomerative Embeddings of Text.
  Guanghui Qin and Benjamin Van Durme. In *Proceedings of the Conference on International Conference on Machine Learning (ICML)*. 2023.
- Ras-mediated homeostatic control of front-back signaling dictates cell polarity.
  Yiyan Lin*, Dhiman S Pal*, Parijat Banerjee, Tatsat Banerjee, **Guanghui Qin**, Yu Deng, Jane Borleis, Pablo A Iglesias, and Peter Devreotes. In *bioRxiv*. 2023.
- The NLP Task Effectiveness of Long-Range Transformers.
  Guanghui Qin, Yukun Feng, and Benjamin Van Durme. In *European Chapter of the Association for Computational Linguistics (EACL)*. 2023.
- Learning How to Ask: Querying LMs with Mixtures of Soft Prompts.
  Guanghui Qin and Jason Eisner. In *Proceedings of Conference of the North American Chapter of the Association for Computational Linguistics (NAACL, short)*. 2021. **Best Short Paper Award**
- Everything is all it takes: A multipronged strategy for zero-shot cross-lingual information extraction.
  Mahsa Yarmohammadi, Shijie Wu, Marc Marone, Haoran Xu, Seth Ebner, **Guanghui Qin**, Yunmo Chen, Jialiang Guo, Craig Harman, Kenton Murray, Aaron S. White, Mark Dredze, and Benjamin Van Durme. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*. 2021.
- LOME: Large Ontology Multilingual Extraction.
  Patrick Xia*, **Guanghui Qin***, Siddharth Vashishtha, Yunmo Chen, Tongfei Chen, Chandler May, Craig Harman, Kyle Rawlins, Aaron Steven White, and Benjamin Van Durme. In *Proceedings of Conference of the European Chapter of the Association for Computational Linguistics (EACL, demo)*. 2021.
- Iterative Paraphrastic Augmentation with Discriminative Span-based Alignment.
  Ryan Culkin, J Edward Hu, Elias Stengel-Eskin, **Guanghui Qin**, and Benjamin Van Durme. In *Transactions of the Association for Computational Linguistics (TACL), 9:494-509*. 2021.
- Neural Datalog Through Time: Informed Temporal Modeling via Logical Specification.
  Hongyuan Mei, **Guanghui Qin**, Minjie Xu, and Jason Eisner. In *Proceedings of the Conference on International Conference on Machine Learning (ICML)*. 2020.
- CopyNext: Explicit Span Copying and Alignment in Sequence to Sequence Models.
  Singh Abhinav, Patrick Xia, **Guanghui Qin**, Mahsa Yarmohammadi, and Benjamin Van Durme. In *Proceedings of Workshop on Structured Prediction for NLP*. 2020.
- Imputing Missing Events in Continuous-Time Event Streams.
  Hongyuan Mei, **Guanghui Qin**, and Jason Eisner. In *Proceedings of the Conference on International Conference on Machine Learning (ICML)*. 2019.
- Learning Latent Semantic Annotations for Grounding Natural Language to Structured Data.
  Guanghui Qin, Jin-Ge Yao, Xuening Wang, Jinpeng Wang, and Chin-Yew Lin. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*. 2018.
- Data2Text Studio: Automated Text Generation from Structured Data.
  Longxu Dou, **Guanghui Qin**, Jinpeng Wang, Jin-Ge Yao, and Chin-Yew Lin. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP, demo)*. 2018.

(* indicates equal contribution) *Last updated on Feb 9, 2024.*