

Zheye Deng

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EDUCATION

Hong Kong University of Science and Technology

Hong Kong SAR, China

Ph.D. in Computer Science and Engineering

Sept. 2022 - Now

- Advisor: Prof. Yangqiu Song
- Focus on combining large language models (LLMs) with graph-based representations and reinforcement learning to extract and reason over structured information from text.

Peking University

Beijing, China

Bachelor of Science in Computer Science

Sept. 2016 - Jun. 2020

- Selected for *Top Notch Undergraduate Program* (Top 5%); GPA: 3.62/4 (Honors: Summa Cum Laude)
- Exchanged at Hong Kong University of Science and Technology in 2018 Spring; GPA: 4.18/4.3 (Honors: Dean's List)

EXPERIENCE

Applied Scientist Intern

Jun. 2025 - Now

Amazon Stores Foundational AI, Amazon Inc.

Palo Alto, CA, USA

- Investigated asynchronous reinforcement learning (RL) strategies to accelerate the training process.

Research and Development Engineer

Jul. 2020 - Aug. 2022

Megvii Infrastructure Team, Megvii Technology Co., Ltd.

Beijing, China

- Contributed core optimizations to *MegEngine*, focusing on memory efficiency during model training.
- Implemented and improved DTR gradient checkpointing; led to a patent application.

Research Assistant

Jun. 2019 - Sep. 2019

UCSB NLP Group, University of California, Santa Barbara

Santa Barbara, CA, USA

- Published a large and high-quality dataset called *AnchorNER* using abstracts from Wikipedia and DBpedia.
- Developed a neural correction model for open-domain Named Entity Recognition and obtained SOTA results.

Research and Development Engineer Intern

Jun. 2018 - Oct. 2018

Douyin Data Team, Bytedance Technology Co., Ltd.

Beijing, China

- Developed an algorithm based on a decision tree to identify comment baiting videos in *Douyin (Tiktok)*.
- Processed massive user data using Kafka and HiveQL.

PUBLICATIONS

1. **Zheye Deng**, Chunkit Chan, Tianshi Zheng, Wei Fan, Weiqi Wang, Yangqiu Song. Structuring the Unstructured: A Systematic Review of Advanced Information Extraction via Comprehensive Evaluation Frameworks. *(Preprint)*
2. Tianshi Zheng, **Zheye Deng**, Hong Ting Tsang, Weiqi Wang, Jiaxin Bai, Zihao Wang, Yangqiu Song. From automation to autonomy: A survey on large language models in scientific discovery. *(Preprint)*
3. Wei Fan, Tianshi Zheng, Yiran Hu, **Zheye Deng**, Weiqi Wang, Baixuan Xu, Chunyang Li, Haoran Li, Weixing Shen, Yangqiu Song. Legal Rule Induction: Towards Generalizable Principle Discovery from Analogous Judicial Precedents. *(Preprint)*
4. Chunkit Chan, Yauwai Yim, Hongchuan Zeng, Zhiying Zou, Xinyuan Cheng, Zhifan Sun, **Zheye Deng**, Kawai Chung, Yuzhuo Ao, Yixiang Fan, Cheng Jiayang, Ercong Nie, Ginny Y Wong, Helmut Schmid, Hinrich Schütze, Simon See, Yangqiu Song. XToM: Exploring the Multilingual Theory of Mind for Large Language Models. *(Preprint)*
5. Jiaxin Bai, Zihao Wang, Yukun Zhou, Hang Yin, Weizhi Fei, Qi Hu, **Zheye Deng**, Jiayang Cheng, Tianshi Zheng, Hong Ting Tsang, Yisen Gao, Zhongwei Xie, Yufei Li, Lixin Fan, Binhang Yuan, Wei Wang, Lei Chen, Xiaofang Zhou, Yangqiu Song. Top ten challenges towards agentic neural graph databases. *(Preprint)*
6. Tianshi Zheng, Jiazheng Wang, Zihao Wang, Jiaxin Bai, Hang Yin, **Zheye Deng**, Yangqiu Song, Jianxin Li. Enhancing Transformers for Generalizable First-Order Logical Entailment. *In ACL 2025.*
7. **Zheye Deng**, Chunkit Chan, Weiqi Wang, Yuxi Sun, Wei Fan, Tianshi Zheng, Yauwai Yim, Yangqiu Song. Text-Tuple-Table: Towards Information Integration in Text-to-Table Generation via Global Tuple Extraction. *In EMNLP 2024 (Oral).*
8. Wei Fan, Haoran Li, **Zheye Deng**, Weiqi Wang, Yangqiu Song. GoldCoin: Grounding Large Language Models in Privacy Laws via Contextual Integrity Theory. *In EMNLP 2024 (Oral) with Outstanding Paper Award.*

9. Chunkit Chan, Cheng Jiayang, Yauwai Yim, **Zheye Deng**, Wei Fan, Haoran Li, Xin Liu, Hongming Zhang, Weiqi Wang, Yangqiu Song. NegotiationToM: A Benchmark for Stress-testing Machine Theory of Mind on Negotiation Surrounding. In *Findings of EMNLP 2024*.
10. Yauwai Yim, Chunkit Chan, Tianyu Shi, **Zheye Deng**, Wei Fan, Tianshi Zheng, Yangqiu Song. Evaluating and enhancing llms agent based on theory of mind in guandan: A multi-player cooperative game under imperfect information. In *WI-IAT 2024*.
11. Chunkit Chan, Cheng Jiayang, Xin Liu, Yauwai Yim, Yuxin Jiang, **Zheye Deng**, Haoran Li, Yangqiu Song, Ginny Y Wong, Simon See. Audience Persona Knowledge-Aligned Prompt Tuning Method for Online Debate. In *ECAI 2024*.
12. **Zheye Deng**, Weiqi Wang, Zhaowei Wang, Xin Liu, Yangqiu Song. GOLD: A Global and Local-aware Denoising Framework for Commonsense Knowledge Graph Noise Detection. In *Findings of EMNLP 2023*.
13. Zhongzhe Hu, Junmin Xiao, **Zheye Deng**, Mingyi Li, Kewei Zhang, Xiaoyang Zhang, Ke Meng, Ninghui Sun, Guangming Tan. MegTaiChi: Dynamic tensor-based memory management optimization for DNN training. In *ICS 2022*.
14. Mengdi Zhu, **Zheye Deng**, Wenhan Xiong, Mo Yu, Ming Zhang, William Yang Wang. Towards Open-Domain Named Entity Recognition via Neural Correction Models. (*Preprint*).
15. Chence Shi, **Zheye Deng**, Yewen Xu, Weiping Song, Yichun Yin, Jile Zhu, Ming Zhang. Ensembling XGBoost and Neural Network for Churn Prediction with Relabeling and Data Augmentation. In *WSDM Cup 2018 Workshop*.

AWARDS

- **EMNLP 2024 Outstanding Paper Award** (2024)
- **Hong Kong PhD Fellowship** (2022 - 2026)
- **HKUST RedBird Academic Excellence Award for Continuing PhD Students** (2024 - 2025)
- **HKUST RedBird Academic Excellence Award for Continuing PhD Students** (2023 - 2024)
- **HKUST RedBird PhD Scholarship** (2022)
- **Peking University Third-class Scholarship** (2019)
- **Third Runner-up in WSDM Cup** (2018)
- **Second Prize in Peking University Programming Contest** (2017)
- **Gold Prize in Asia-Pacific Informatics Olympiad** (2015)
- **Silver Prize in National Olympiad in Informatics** (2015)