CHENG QIAN

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🎓 EDUCATION

Tsinghua University, *Undergraduate*   Sep 2020 – Present
B.Eng. in Computer Science and Technology

- ➢ **Accumulate GPA: 3.90 / 4.00.**
- ➢ Selected Courses of **A & A+**: Linear Algebra, Discrete Mathematics, Foundation of Object-Oriented Programming, Software Engineering, Computer Architecture, Introduction to Artificial Intelligence, Artificial Neural Networks, Writing and Communication.
- ➢ Member of **THU Natural Language Processing Group**, advised by **Prof. Zhiyuan Liu**.

📚 PUBLICATIONS & PATENTS & TALKS

Publications:

[1] **Cheng Qian**, Chenyan Xiong, Zhenghao Liu, Zhiyuan Liu. *Toolink: Linking Toolkit Creation and Using through Chain-of-Solving on Open-Source Model*. ArXiv 2023.10.

[2] **Cheng Qian**, Xinran Zhao, Sherry Tongshuang Wu. *"Merge Conflicts!" Exploring the Impacts of External Distractors to Parametric Knowledge Graphs*. ArXiv 2023.9. Citation: 2.

[3] **Cheng Qian**, Chi Han, Yi R. Fung, Yujia Qin, Zhiyuan Liu, Heng Ji. *CREATOR: Tool Creation for Disentangling Abstract and Concrete Reasonings of Large Language Models*. Findings of EMNLP 2023. Citation: 9.

[4] Yujia Qin, Shengding Hu, Yankai Lin, … **Cheng Qian**, …, Maosong Sun. *Tool Learning with Foundation Models*. ArXiv 2023.4. Citation: 48.

[5] **Cheng Qian***, Yujia Qin*, Xu Han, Yankai Lin, Huadong Wang, Ruobing Xie, Zhiyuan Liu, Maosong Sun, Jie Zhou. *Recyclable Tuning for Continual Pre-training*. Findings of ACL 2023. Citation: 1.

[6] **Cheng Qian***, Yujia Qin*, Jing Yi*, Weize Chen, Yankai Lin, Xu Han, Zhiyuan Liu, Maosong Sun, Jie Zhou. *Exploring Mode Connectivity for Pretrained Language Models*. EMNLP 2022. Citation: 7.

* indicates equal contributions.

Patents:

- ➢ Name: Training Method, Device, Medium, and Program Product for Predictive Model. Type: Invention. Inventors: Zhiyuan Liu, Maosong Sun, **Cheng Qian** (Technical Lead), Yujia Qin, Yankai Lin, Ruobing Xie, Jie Zhou, Tsinghua University & Tencent Inc. Internal Ref. Num: 2022090418.

Talks:

- ➢ Tool Learning and Tool Creation of LLM, invited talk at SenseTime Smart City Group, 2023.6.

⚛ RESEARCH & PROJECTS

Undergraduate Research Assistant   Aug 2021 – Present
- ➢ THUNLP, Tsinghua University, Advisor: **Prof. Zhiyuan Liu**
- ➢ Main Projects: Tool learning and tool use with foundation models; LLM-driven AI agent (XAgent); LLM lifelong pre-training and knowledge acquisition; LLM knowledge interpretability through mode connectivity.

Visiting Student   Jun 2023 – Sep 2023
- ➢ WInE Lab, Carnegie Mellon University, Advisor: **Prof. Sherry Tongshuang Wu**
- ➢ Main Projects: External and parametric knowledge conflicts; Interpretability of LLM behaviors.

Visiting Student   Mar 2023 – Jun 2023

- ➢ Blender Lab, University of Illinois at Urbana-Champaign, Advisor: **Prof. Heng Ji**
- ➢ Main Projects: LLM's tool creation ability; CREATOR framework.

Visiting Student   Mar 2023 – Jun 2023
- ➢ Chenyan's Research Group, Carnegie Mellon University, Advisor: **Prof. Chenyan Xiong**
- ➢ Main Projects: Open-source model adaptation of tool use ability; Toolink framework.

Student Intern   Jul 2021 – Aug 2021
- ➢ Beijing-Shanghai Summer Intern Program, VMware, Advisor: **Dr. Yingji Sun**
- ➢ Main Projects: Product software development.

ACADEMIC INTERESTS

- ➢ Tool learning and tool creation of LLM.
- ➢ LLM-driven AI agent, embodied AI.
- ➢ Instruction tuning and prompt tuning of LLM.
- ➢ Pre-training and parameter-efficient tuning of LLM.

SELECTED AWARDS & HONORS

➢ Comprehensive Excellence Scholarship, highest scholarship in Dept. of CST, **1 / 180**.	2021, 2023
➢ Volunteering & Social Survey Excellence Scholarship, Dept. of CST, **1 / 180**.	2022
➢ SenseTime Scholarship for Innovative AI Talent, **top 30 in China.**	2023
➢ Awards of Excellent Student Cadre, Tsinghua University.	2021
➢ Five-Star (Highest Honor) Volunteer, Tsinghua University.	2022
➢ Second Prize in National Undergraduate Physics Competition, Beijing Physics Society.	2022
➢ Third Prize in THU Challenge Cup Academic Competition, Tsinghua University.	2022
➢ Honorable Mention in 2023 Mathematical Contest in Modeling	2023

EXTRA-CURRICULUM SERVICES & EXPERIENCES

➢ Reviewer, COLING 2022.	2022
➢ Olympic Family Assistant of IBSF President Ivo Ferriano and HRH Prince Jigyel Ugyen Wangchuck (Bhutan), 2022 Beijing Winter Olympics.	2022
➢ Member of Student Union and Student Association of Science and Technology.	2021-2023
➢ Member of Tsinghua Orienteering Team (Sport, Professional).	2020-2023
➢ Mentor of Tsinghua Summer School (Beijing).	2022

SKILLS

English Skills
- ➢ TOEFL (Best) 115/120 (Reading 30, Listening 30, Speaking 26, Writing 29).
- ➢ GRE Verbal Reasoning 162/170, Quantitative Reasoning 170/170, Analytical Writing 4/6.

Technical Skills
- ➢ Proficient in C/C++, Python (PyTorch), LaTeX, Linux, Java, React.
- ➢ Familiar with various neural networks and state-of-the-art deep learning techniques.