Yining Hong

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EDUCATION

Tsinghua University Beijing, China
Double Bachelor's Degree in Computer Science and Finance Sept. 2020 – July 2024 (expected)

- **Academic:** Overall GPA 3.89/4.00, Major GPA 3.91/4.00
- **Computer Science Curriculum:** Data Structures and Algorithms, Software Engineering, Object Oriented Programming, Operating Systems, Computer Organization, Principles and Practice of Compiler Construction, Introduction to Artificial Intelligence.

Beijing No.8 High School Beijing, China
Experimental Program for Gifted and Talented Teenagers Sept. 2015 – July 2020

PUBLICATION

- **Yining Hong**, Fanchao Qi, Maosong Sun, "Two Heads Are Better Than One: Exploiting Both Sequence and Graph Models in AMR-To-Text Generation", submitted to *Twelfth International Conference on Learning Representations (**ICLR 2024**)*.

RESEARCH EXPERIENCE

An LLM-Enabled Automated Textual Data-Slicing System
School of Computer Science, Carnegie Mellon University Pittsburgh, PA, USA
Co-advised by Prof. Christian Kästner and Prof. Sherry Tongshuang Wu June 2023 – Present

- Previous studies in behavior analysis mainly focused on finding analysis concepts and helping practitioners identify problematic data slices, *leaving the problem of slicing data unexplored*.
- Proposed a *fully automated textual data slicing system* utilizing large language models.
- Developed a system that *automatically labels 1000 textual data in 3.5 minutes* on 8 A6000 GPUs.
- *Verified the validity* of the data slicing results in the context of question-answering, using the HotpotQA dataset.

Abstract Meaning Representation (AMR) Graph-to-Text Generation
Tsinghua University Natural Language Processing Lab (THUNLP) Beijing, China
Advised by Prof. Maosong Sun Nov. 2021 – Sep. 2023

- Previous research in abstract representation (AMR) graph-to-text generation used two architectures: *sequence-to-sequence* architectures *struggle with processing graph structure*; *graph-to-sequence* architectures cannot be pre-trained with corpus and exhibit *poor language abilities*.
- Proposed *a novel dual encoder-decoder model for AMR-to-text generation*, combining the sequence-to-sequence and graph-to-sequence architectures to *harness their respective strengths and address their weaknesses*.
- Designed a *specialized graph neural network encoder* that can be *initialized with pre-trained language models* and can be *integrated with Transformer architecture* to build an end-to-end neural network.
- Achieved *SOTA performances* in AMR-to-text generation on metrics including Bleu, Meteor, and chrF++.
- Submitted paper "Two Heads Are Better Than One: Exploiting Both Sequence and Graph Models in AMR-To-Text Generation" to *ICLR 2024*.

INTERNSHIP

Advanced Micro Devices, Inc. (AMD) Beijing, China
Machine Learning Optimization Intern, AMD Xilinx Jan. 2024 (expected) – June 2024 (expected)
Beijing Kuangshi Technology Co., Ltd. (Megvii) Beijing, China
Software Engineer Intern, Autonomous Vehicles Department Sept. 2023 – Jan. 2024 (expected)

- Developed a real-time high-performance trajectory prediction software module utilizing C++ and ROS2.
- Collaborated with both *machine learning research scientists* and *software engineers*.
- Upgraded the rule-based prediction module to support neural network computation, incorporating state-of-the-art trajectory prediction methods including PiH and HiVT, facilitating autonomous driving on *real production cars*.
- Designed and developed postprocessing methods for obstacle trajectory prediction according to the feedback from real car experiments.

TEACHING EXPERIENCE

Center for Student Learning and Development, Tsinghua University Beijing, China
Volunteer Teaching Assistant (Outstanding Level) Mar. 2022 – Present

- Assisted students with programming; answered questions regarding courses including Data Structures and Algorithms, Operating Systems, and Object-Oriented Programming.
- Contributed over 250 hours of assistance to more than 130 students, receiving a 5.0/5.0 satisfaction rating.
- Recognized as an honored volunteer teaching assistant for the fall semester of 2022.

HONORS AND AWARDS

Comprehensive Excellence Scholarship (top 10%), Tsinghua University *Nov. 2023*
Citadel Securities Scholarship, Citadel *Dec. 2022*
Comprehensive Excellence Scholarship (top 10%), Tsinghua University *Nov. 2022*
Academic Excellence Scholarship (top 30%), Tsinghua University *Nov. 2021*
Sports Excellence Scholarship, Tsinghua University *Nov. 2021*
First Prize Winner of Senior Group, National Olympiad in Informatics in Provinces *Nov. 2018*
First Prize Winner of Senior Group, National Olympiad in Informatics in Provinces *Nov. 2017*

SKILLS

- **Programming Languages:** C/C++, Python, JavaScript/TypeScript, Verilog/SystemVerilog, Rust, Solidity.
- **Software Engineering/Machine Learning:** Git, CI/CD, PyTorch, Fairseq, Vue, Django, Jest, Qt, Cocos2d.
- **Language Skills:** Proficient in English, GRE 329 + 4.0, TOEFL 112.

GROUP MEMBERSHIPS

Tsinghua University Track and Field Team, Tsinghua University Beijing, China
Sprinter May. 2022 – Present

- Actively trained and competed in sports events.

Student Association of Educational Prosperity for All, Tsinghua University Beijing, China
Secretary Sept. 2020 – June.2022

- Organized multiple voluntary teaching projects, offering educational support to high school students from underprivileged backgrounds.