

# Yining Hong

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## EDUCATION

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### 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

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- **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

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### 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

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Advanced Micro Devices, Inc. (AMD)

Beijing, China

Machine Learning Optimization Intern, AMD Xilinx	Jan. 2024 (expected) – June 2024 (expected)
<b>Beijing Kuangshi Technology Co., Ltd. (Megvii)</b>	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

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<b>Center for Student Learning and Development</b> , 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

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

## SKILLS

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- **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

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<b>Tsinghua University Track and Field Team</b> , Tsinghua University	Beijing, China
Sprinter	May. 2022 – Present

- Actively trained and competed in sports events.

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

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