Haozhe Ji

Email: jihaozhe@gmail.com
Web: cdjhz.github.io
Phone: +86 15652655811

RESEARCH
INTERESTS

I have broad research interests in natural language generation, language modeling, and deep learning. I am particularly interested in applying techniques and theories to build *verifiable*, *consistent* and *robust* AI systems that generate human-like natural language.

Recently, my research focused on the **degeneration problem** of natural language generation where the representational dimension fails to capture the full complexity of human language due to mis-specifications in the *status-quo* model family, namely the Auto-Regressive (AR) model, and the learning objective, Maximum Likelihood Estimation (MLE). Specifically, my major works aim to tackle the following issues:

- **Limitations of AR model**: To overcome the limitations of the AR model, we explore more expressive model family, including semi-parametric models [4,3], memory-augmented models [7], latent variable models [6] and energy-based models [10].

- **Bias of MLE**: To address the bias inherent in MLE, we introduce a robust learning objective based on Total Variation Distance (TVD) [9] and decoding objective that directly targets alignment with human texts [10].

EDUCATION

Tsinghua University, Beijing, China   September 2020 - Present
Ph.D. Student, Computer Science and Technology
Advisor: Minlie Huang

Tsinghua University, Beijing, China   September 2016 - July 2020
B.E., Electronic Engineering

PREPRINTS

[10] **Language Model Decoding as Direct Metrics Optimization**
Haozhe Ji, Pei Ke, Hongning Wang, Minlie Huang
ArXiv abs/2310.01041, 2023.

PUBLICATIONS

[9] **Tailoring Language Generation Models under Total Variation Distance**
Haozhe Ji, Pei Ke, Zhipeng Hu, Rongsheng Zhang, Minlie Huang
International Conference on Learning Representations (ICLR), 2023.
*(**Notable top 5%**)*

[8] **Curriculum-Based Self-Training Makes Better Few-Shot Learners for Data-to-Text Generation**
Pei Ke, **Haozhe Ji**, Zhenyu Yang, Yi Huang, Junlan Feng, Xiaoyan Zhu, Minlie Huang
International Joint Conference on Artificial Intelligence (IJCAI), 2022.

[7] **LaMemo: Language modeling with look-ahead memory**
Haozhe Ji, Rongsheng Zhang, Zhenyu Yang, Zhipeng Hu, Minlie Huang
North American Chapter of the Association for Computational Linguistics (NAACL), 2022.

[6] **DiscoDVT: Generating Long Text with Discourse-Aware Discrete Variational Transformer**
Haozhe Ji, Minlie Huang
Empirical Methods in Natural Language Processing (EMNLP), 2021.

[5] **Jointgt: Graph-text joint representation learning for text generation from knowledge graphs**
Pei Ke, **Haozhe Ji**, Yu Ran, Xin Cui, Liwei Wang, Linfeng Song, Xiaoyan Zhu, Minlie Huang
Findings of the Association for Computational Linguistics (Findings of ACL), 2021.

[4] **Language generation with multi-hop reasoning on commonsense knowledge graph**
Haozhe Ji, Pei Ke, Shaohan Huang, Furu Wei, Xiaoyan Zhu, Minlie Huang
Empirical Methods in Natural Language Processing (EMNLP), 2020.

[3] **Generating commonsense explanation by extracting bridge concepts from reasoning paths**
Haozhe Ji, Pei Ke, Shaohan Huang, Furu Wei, Minlie Huang
Asia-Pacific Chapter of the Association for Computational Linguistics (AACL), 2020.

[2] **Sentilare: Linguistic knowledge enhanced language representation for sentiment analysis**
Pei Ke[*], **Haozhe Ji**[*], Siyang Liu, Xiaoyan Zhu, Minlie Huang
Empirical Methods in Natural Language Processing (EMNLP), 2020.

[1] **Denoising distantly supervised open-domain question answering**
Yankai Lin, **Haozhe Ji**, Zhiyuan Liu, Maosong Sun
Annual Meeting of the Association for Computational Linguistics (ACL), 2018.

RESEARCH EXPERIENCE	**CoAI Lab**, **Tsinghua University** *Ph.D. Candidate (Supervisor: Minlie Huang)*	September 2020 - July 2025 (Expected)
	Natural Language Comuputing group, **Microsoft Research Asia** *Research Intern (Supervisors: Shaohan Huang, Furu Wei)*	July 2019 - July 2020

SERVICES | **Reviewer/Program Committee**: ACL, EMNLP, ARR, AAAI

AWARDS
First Prize, Comprehensive Scholarship, Tsinghua University — 2022
First Prize, Comprehensive Scholarship, Tsinghua University — 2021
First-Class Academic Scholarship, Tsinghua University — 2017
Gold Medal, 32nd China Physics Olympiads (CPhO) — 2015
Honor Roll of Distinction (Top 1%), American Mathematics Contest 12 (AMC12) — 2015