

Haoran Zhao

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Education

University of Washington Master of Science in Computational Linguistics GPA 3.89	2024 – Present
Drexel University Bachelor of Science in Data Science, Minor in Linguistics GPA 3.85	2021 – 2024
Lanzhou University Bachelor of Science in Computer Science GPA 3.97	2019 – 2023

Research Keywords

Social Communication, Pragmatics, AI

Research Experience

Brains, Minds, & Machines Summer School , MIT - <i>Working with Dr. Colin Conwell</i> - Compare communication patterns in humans and machines through a Tangram game using representation learning methods (NeurIPS 2025 workshop)	August 2025
Social Interaction Lab, Stanford University - <i>Research Assistant, advised by Prof. Robert Hawkins</i> - Study the polite language production capabilities of humans and LLMs in social contexts (CogSci 2025, EMNLP 2025)	May 2024 - Present
Computational Minds and Machines Lab, University of Washington - <i>Research Assistant, advised by Prof. Max Kleiman-Weiner</i> - Model language use in different social relationships, collaborating with Prof. Robert Hawkins	October 2024 - Present
Computation and Cognition Lab, Stanford University - <i>Research Assistant, advised by Prof. Noah Goodman</i> - Examine LLM's non-literal number understanding (hyperbole & pragmatic halo) abilities (CogSci 2025)	September 2023 - March 2024
CODED Lab, Drexel University - <i>Research Assistant, advised by Prof. Jake Williams</i> - Improve training efficiency in terms of compute and time for neural networks and LMs	September 2022 - June 2024

Publications

* Equal Contribution

Proceedings Papers

- [1] **Zhao, H.**, Hawkins, R.D. (2025). Comparing human and LLM politeness strategies in free production. *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*.

- [2] **Zhao, H.**, Hawkins, R.D. (2025). Polite Speech Generation in Humans and Language Models. *Proceedings of the 47th Annual Conference of the Cognitive Science Society (CogSci)*.
- [3] Tsvilodub, P.*, Gandhi, K.*, **Zhao, H.***, Fränken, J.-P., Franke, M., Goodman, N.D. (2025). Non-literal Understanding of Number Words by Language Models. *Proceedings of the 47th Annual Conference of the Cognitive Science Society (CogSci)*.

Workshop Papers

- [4] **Zhao, H.**, Conwell, C. (2025). Comparing Human & Machine Communication Patterns through a Tangram Game. *NeurIPS workshop on Data on the Brain & Mind*.
- [5] **Zhao, H.** (2024). Large Language Models are Not Inverse Thinkers Quite yet. *ICML Workshop on LLMs and Cognition*.

Other Publications

- [6] Perko, A., **Zhao, H.**, Wotawa, F. (2023). Optimizing Named Entity Recognition for Improving Logical Formulae Abstraction from Technical Requirements Documents. *The 10th International Conference on Dependable Systems and Their Applications (DSA-2023)*.
- [7] Fang, X., Kalinowski, A., **Zhao, H.**, You, Z., Zhang, Z., An, Y. (2022). Prompt Design and Answer Processing for Knowledge Base Construction from Pre-trained Language Models (KBC-LM). *Challenge @ 21st International Semantic Web Conference (ISWC 2022) CEUR Workshop Proceedings*.

Preprints

- [8] Long, P., Alice, G.,... **Zhao, H.**, ... et al. (2025). Humanity's last exam, arXiv preprint arXiv:2501.14249.
- [9] **Zhao, H.**, & Williams, J.R. (2023). Bit Cipher—A Simple yet Powerful Word Representation System that Integrates Efficiently with Language Models. *arXiv preprint arXiv:2311.11012*.
- [10] Williams, J.R., & **Zhao, H.** (2023). Explicit Foundation Model Optimization with Self-Attentive Feed-Forward Neural Units. *arXiv preprint arXiv:2311.07510*. 2023.
- [11] Williams, J.R., & **Zhao, H.** (2023). Reducing the Need for Backpropagation and Discovering Better Optima With Explicit Optimizations of Neural Networks. *arXiv preprint arXiv:2311.07498*. 2023.

Honors and Awards

Center for Brain, Minds, and Machines Summer School Fellow, MIT	2025
CRA Outstanding Undergraduate Researcher Award – Honorable Mention	2024
Steinbright Partners Program Award, Drexel University (\$6,000)	2023
Undergraduate Research Mini-Grant, Drexel University (\$2,000)	2023
A. J. Drexel Scholarship, Drexel University	2021–2024
Second-class scholarship for outstanding students, Lanzhou University	Sep 2021
Innovation And Entrepreneurship Scholarship, Lanzhou University	2020–2021

Teaching Experience

Teaching Assistant, Deep learning for Natural Language Processing (DSCI 691) <i>Department of Information Science, Drexel University</i>	Spring 2024
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Professional Services

Conference and Workshop reviewing

NeurIPS – Efficient Natural Language and Speech Processing (ENLSP) workshop 2023, 2024

NAACL ARR 2024

ICML – LLMs and Cognition Workshop 2024

NeurIPS – Behavioral Machine Learning Workshop 2024

Annual Conference of the Cognitive Science Society 2025

ICLR – Re-Align Workshop 2025

NeurIPS – Data on the Brain & Mind workshop 2025

Skills

Coding: Python, R, memo, HTML, CSS, JavaScript, SQL, Git, PyTorch, HuggingFace Transformers, Scikit-Learn, spaCy, NLTK, Numpy, Pandas

Languages: Mandarin (native), English (proficient), Spanish & Japanese (elementary)