

ZHU LIU

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EDUCATION

Tsinghua University, Beijing, China

Ph.D. in Computational Linguistics

Aug. 2022 – Present

Supervisor: Prof. Ying Liu

Research Topics: Evaluation and Interpretability of Language Model; Lexical Semantics

Thesis: Evaluation and Interpretability Analysis of Large Language Models for Multilingual

Word-in-Context Relatedness

Research Assistant in THUNLP

Sept. 2023 – Feb. 2025

Collaborator: Prof. Maosong Sun (advisor)

Visiting Scholar in Sapienza NLP

Mar. 2025 – Aug. 2025

Collaborator: Prof. Roberto Navigli

Southern University of Science and Technology, Shenzhen, China

M.S. in Computer Science and Technology

Aug. 2019 – Jun. 2022

Supervisor: Prof. Feng Zheng

Thesis: Towards Human-like Diverse Video Captioning via a Latent Generative Model

Research Topics: Video Captioning; Conditional Text Generation; Variational-based Models

GPA: 3.67/4.00

Dalian University of Technology, Dalian, China

B.Eng. in Software Engineering

Sept. 2015 – Jun. 2019

ACADEMIC EXPERIENCE

Lecturer, College of Liberal Arts, Shanghai University

Aug. 2026 – Present

INDUSTRY EXPERIENCE

AI Language Education Intern, *Startup Company (AI + Language Education)* Apr. 2026 – Present

Focus: Generative AI for Multimodal Language Learning

- Optimized LLM prompts to generate linguistically-graded, scenario-based scripts to produce language learning videos.

- Developed controllable generation pipelines for multilingual content creation.

Content Intern, *JiQiZhiXin / Synced (AI News & Media Platform)* Jan. 2022 – Jun. 2022

Focus: Science Communication and AI Journalism

- Curated and summarized AI research papers and news for public dissemination.

- Wrote feature stories and managed content distribution across social media channels.

PUBLICATIONS

Model Evaluation/Lexical Semantics

Zhu Liu and Ying Liu. “Ambiguity Meets Uncertainty: Investigating Uncertainty Estimation for Word Sense Disambiguation.” *Findings of ACL 2023*, pp. 3963–3977, Toronto, Canada. (CCF A, EI, cite: 8)

Zhu Liu, Zhen Hu, and Ying Liu. “JuniperLiu at CoMeDi Shared Task: Models as Annotators in Lexical Semantics Disagreements.” *CoMeDi Workshop, COLING 2025*, Abu Dhabi, UAE. (CCF B, EI, cite: 1)

Zhu Liu, Cunliang Kong, Ying Liu, and Maosong Sun. “A Top-down Graph-based Tool for Modeling Classical Semantic Maps: A Crosslinguistic Case Study of Supplementary Adverbs.” *NAACL 2025*, Albuquerque, New Mexico. (CCF B, EI)

Kangyang Luo, Yuzhuo Bai, Shuzheng Si, Cheng Gao, Zhitong Wang, Yingli Shen, Wenhao Li, Zhu Liu, Yufeng Han, Jiayi Wu, Cunliang Kong, Maosong Sun. ImCoref-CeS: An Improved Lightweight Pipeline for Coreference Resolution with LLM-based Checker-Splitter Refinement. *ACL 2026* (CCF A)

刘柱,孔存良,刘颖,等.基于自上而下图论算法的语义地图自动构建与评估——以“重复义副词”语义地图为例[J].清华语言学,2026,(1):194-213.

Zhu Liu, Zhen Hu, Lei Dai, and Ying Liu. “XISM: An Exploratory and Interactive Graph Tool to Visualize and Evaluate Semantic Map Models.” *arXiv:2507.04070*, 2026.

Model Interpretability

Zhu Liu, Cunliang Kong, Ying Liu, and Maosong Sun. “Fantastic Semantics and Where to Find Them: Investigating Which Layers of Generative LLMs Reflect Lexical Semantics.” *Findings of ACL 2024*, pp. 14551–14558, Bangkok, Thailand. (CCF A, EI, cite: 22)

Kangyang Luo, Yuzhuo Bai, Cheng Gao, Shuzheng Si, Yingli Shen, Zhu Liu, et al. “GLTW: Joint Improved Graph Transformer and LLM via Three-Word Language for Knowledge Graph Completion.” *Findings of ACL 2025*. (CCF A, EI, cite: 5)

Zhu Liu, Ying Liu, Kangyang Luo, Cunliang Kong, and Maosong Sun. “From the New World of Word Embeddings: A Comparative Study of Small-World Lexico-Semantic Networks in LLMs.” *arXiv:2502.11380*, 2025.

Multimodal AI/Digital Humanities/AI for Education

Zhu Liu, Teng Wang, Jinrui Zhang, Feng Zheng, Wenhao Jiang and Ke Lu. “Show, Tell and Rephrase: Diverse Video Captioning via Two-Stage Progressive Training.” *IEEE Transactions on Multimedia*, Vol. 25, pp. 7894–7905, 2022. (CCF A, JCR&SCI Q1, IF: 9.7)

Jian Ma, Zhu Liu, Yurong Shi, Bingxian Luo, and Feng Zheng. “Multimodal Solar Flare Prediction Model Based on Sunspot Group Data.” *Spacecraft Environmental Engineering*, 2021, 38(3):256–262.

Teng Wang, Zhu Liu, Feng Zheng, Zhichao Lu, Ran Cheng, and Ping Luo. “Semantic-Aware Pretraining for Dense Video Captioning.” *arXiv preprint arXiv:2204.07449*, 2022.

PATENT

Feng Zheng, **Zhu Liu**. Method for training video content description model, application method, device, and medium: China, CN114386480B [P]. 2025-07-18.

PRESENTATIONS

“**A Top-down Graph-based Tool for Modeling Classical Semantic Maps: A Crosslinguistic Case Study of Supplementary Adverbs**“, NAACL 2025, New Mexico, USA, April. Online **poster** presentation; Sixth THU University Youth Academic Forum on Linguistics and Philology, Beijing, China, October 2024. **oral** presentation in Chinese; the second CCF AI for Humanities Conference, Shanghai, China, July 2026.

“**CoMeDi Shared Task: Models as Annotators in Lexical Semantics Disagreements**“, COLING 2025, Abu Dhabi, UAE, April. **poster** presentation in English.

“**Fantastic Semantics and Where to Find Them: Investigating Which Layers of Generative LLMs Reflect Lexical Semantics**“, ACL 2024, Bangkok, Thailand, August. **poster** presentation in English.

“**Uncertainty Qualification for Word Sense Disambiguation**“, ACL 2023, Toronto, Canada, July. Online **poster** presentation; COLING 2025, Abu Dhabi, UAE, April. **poster** presentation in English; Fourth THU University Youth Academic Forum on Linguistics and Philology, Beijing, China, October 2023. **oral** presentation in Chinese.

“**Transitivity Analysis of Subject-Object Reciprocal Sentences Using a Large Language Model**“, Fifth THU University Youth Academic Forum on Linguistics and Philology, Beijing, China, October 2023. **oral** presentation in Chinese.

TEACHING EXPERIENCE

Teaching Assistant, Tsinghua University

Feb. 2026 – Jul. 2026

Course: An Introduction to Modern Chinese for International Students

Language: Chinese and English

Class size: 40 students

Responsibilities: Answering student questions, teaching grammar exercises

Teaching Assistant, Tsinghua University

Mar. 2023 – Jul. 2023

Course: Python and Digital Humanities

Language: Chinese

Class size: 30 students

Responsibilities: Answering student questions, teaching case studies on digital humanities, checking and grading assignments

Teaching Assistant, Southern University of Science and Technology Mar. 2020 – Jul. 2020

Course: C and C++ Programming

Language: English and Chinese

Class size: 120 students

Responsibilities: Designing and grading assignments, assisting students with questions

PROJECTS

Exploratory and Interactive Graph Tool for Semantic Map Models (SMMs)

A web-based platform for constructing, visualizing, and evaluating semantic map models from user-provided data, supporting large-scale, human-in-the-loop analyses for linguistic typology research.

Interactive and Automatic Mural Captioning System An AI-driven system designed to generate both localized and holistic descriptions of murals, engaging audiences through generative language models. *Outstanding Creative Paper Award, CDH 2023.*

ACADEMIC SERVICE

Area Chair, ARR May 2026

Reviewer, ACL 2025, EACL/NAACL SRW 2026, EMNLP 2023

Chair, Student Research Workshop at ACL 2025

Volunteer, COLING 2025 and NAACL 2025

RESEARCH FUNDING

Participant, *Big Data-Based Textual Analysis and Research on Classical Chinese Literary Masterpieces*, Major Project of the National Social Science Fund of China (Nov. 2018 – Mar. 2025), 800K RMB, Outstanding

Participant, *Big Data-Based Analysis and Research on Ming and Qing Novels*, Humanities and Social Sciences Revitalization Project of Tsinghua University (Jan. 2020 – Nov. 2023), 100K RMB

Participant, *Automatic Extraction and Research of Stylistic Features*, Humanities and Social Sciences Fund of the Ministry of Education of China (Jul. 2017 – Apr. 2022), 100K RMB

Participant, *Deep Learning Models for Spatial Environmental Event Correlation and Forecasting*, Innovation Special Zone Project (Oct. 2020 – Sep. 2021), 500K RMB

Participant, *Multi-modal Deep Learning Models for Solar Flare Prediction*, Innovation Special Zone Project (Nov. 2020 – Mar. 2021), 300K RMB

SELECTED AWARDS AND HONORS

First Prize, THU University Comprehensive Excellence Scholarship (**Top 5%**) Oct. 2025

First Prize, THU University Comprehensive Excellence Scholarship (**Top 5%**) Oct. 2023

First/First/Third Prize, 6/5/4th Tsinghua University Youth Academic Forum on Linguistics
and Philology (**Top 10%**) Sept. 2022/2023/2024

SKILLS

Languages: Mandarin Chinese (native), English (IELTS 7.5)

Programming: Python, R, Matlab, C++, PyTorch