

# Changzhi Sun

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## EDUCATION

### East China Normal University

*Ph.D., Computer Science*

Shanghai, China

Sep. 2014 – Dec. 2019

- Dissertation: Joint Entity Relation Extraction with Deep Learning
- Advisor: Prof. Yuanbin Wu and Prof. Shiliang Sun

### Anhui Normal University

*B.S., Computer Science*

Wuhu, China

Sep. 2010 – Jun. 2014

## EMPLOYMENT

### Institute of Artificial Intelligence (TeleAI), China Telecom

*Research Scientist*

Oct. 2024 – Present

Shanghai, China

- Complex reasoning, tool learning and embodied AI

### LinGang National Lab

*Assistant Researcher*

Aug. 2023 – Oct. 2024

Shanghai, China

- LLM and AI assisted drug discovery

### ByteDance AI Lab

*NLP Researcher*

Jun. 2020 – Jun. 2023

Shanghai, China

- Deep reasoning (logical reasoning, math reasoning, analogical reasoning)

### Microsoft Research Asia

*Research Intern*

Dec. 2018 – May. 2019

Beijing, China

- Topic: Joint type inference on entities and relations
- Mentor: Dr. Yeyun Gong and Dr. Nan Duan

## PUBLICATIONS

[\*: equal contribution; †: corresponding authors; underline indicates students working with me.]

## UNDER REVIEW

- [8] Nuwei Liu, Jiahao Kuang, Yanting Liu, **Changzhi Sun**, Tao Ji, Yuanbin Wu, Man Lan “Protein Design with Dynamic Protein Vocabulary”. Long paper, submitted to NeurIPS 2025
- [7] Jiahao Kuang, Nuwei Liu, **Changzhi Sun**, Tao Ji, Yuanbin Wu “ProtDF-BENCH: Benchmark of Protein Design from Function”. Long paper, submitted to NeurIPS 2025
- [6] Haolun Wu, **Changzhi Sun**, Tao Ji, Jixiang Luo, Yufang Liu, Dell Zhang, Yuanbin Wu, Xuelong Li “Tools as Tokens: Learning to Compress and Compose for Efficient Tool Planning”. Long paper, submitted to AAAI 2026
- [5] Jiazheng Xu\*, **Changzhi Sun**\*, Kai Zhang, Qiaoyu Hu, Liang He, Honglin Li, Xuhong Qian. “Molecular Conformation Generation Model Based on Graph Mixup”. Long paper, submitted to Nature Machine Intelligence 2024 August
- [4] Nuwei Liu, **Changzhi Sun**<sup>†</sup>, Tao Ji, Jianxin Tang, Junfeng Tian, Yuanbin Wu<sup>†</sup>, Man Lan<sup>†</sup>. “EvoLlama: Enhancing LLMs’ Understanding of Proteins via Multimodal Structure and Sequence Representations”. In: Arxiv 2412.11618
- [3] Dell Zhang, Xiangyu Chen, Jixiang Luo, Mengxi Jia, **Changzhi Sun**, Ruilong Ren, Jingren Liu, Hao Sun, Xuelong Li “Infinite Video Understanding”. In: Arxiv 2507.09068
- [2] Wenjing Yue, Xiaoling Wang, Wei Zhu, Ming Guan, Huanran Zheng, Pengfei Wang, **Changzhi Sun**, Xin Ma. “TCMBench: A Comprehensive Benchmark for Evaluating Large Language Models in Traditional Chinese Medicine”. In: Arxiv 2406.01126

- [1] Yijun Wang\*, **Changzhi Sun\***, Yuanbin Wu, Zhao Zhou, Lei Li and Junchi Yan. “Leveraging High-order Interactions for Unified Entity Relation Extraction”. In: Arxiv 2305.04297

#### REFEREED JOURNAL PAPERS

- [J2] Qiaoyu Hu\*, **Changzhi Sun\***, Huan He\*, Jiazheng Xu\*, Danlin Liu\*, Wenqing Zhang, Sumeng Shi, Kai Zhang, Honglin Li “Target-aware 3D Molecular Generation Based on Guided Equivariant Diffusion”. In: *Nature Communications*. 2025.
- [J1] Yihan Mei, Xinyu Wang, **Changzhi Sun**, Dell Zhang, Xiaoling Wang. “Multi-Label Out-of-Distribution Detection with Spectral Normalized Joint Energy”. In: *World Wide Web Journal*. 2025.

#### REFEREED CONFERENCE PAPERS

- [C27] Daiye Miao, Yufang Liu, Jie Wang, **Changzhi Sun**, Yunke Zhang, Demei Yan, Shaokang Dong, Qi Zhang, Yuanbin Wu “TASO: Task-Aligned Sparse Optimization for Parameter-Efficient Model Adaptation”. In: *the Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Nov. 2025.
- [C26] Xinyu Wang\*, **Changzhi Sun\***, Lian Chen, Yuanbin Wu, Dell Zhang, Xiaoling Wang, Xuelong Li. “Logic-Regularized Verifier Elicits Reasoning from LLMs”. In: *the 63th Annual Meeting of the Association for Computational Linguistics (ACL)* Aug. 2025.
- [C24] Yuxiang Song, Zhaoguang Long, Man Lan, **Changzhi Sun**, Aimin Zhou, Yuefeng Chen, Hao Yuan, Fei Cao. Semantic Attention and LLM-based Layout Guidance for Text-to-Image Generation. In: *International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*. Apr. 2025.
- [C23] Zhe Chen, Zhe Fang, Wenhao Tian, Zhaoguang Long, **Changzhi Sun**, Honglin Li, Man Lan. “ReactGPT: Understanding and Generation of Chemical Reactions via In-Context Tuning”. In: *the 39th Annual AAAI Conference on Artificial Intelligence (AAAI)*. Feb. 2025.
- [C22] Yanting Liu, Tao Ji, **Changzhi Sun**, Yuanbin Wu, Xiaoling Wang. “Generation with Dynamic Vocabulary”. In: *the Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Nov. 2024.
- [C21] Yufang Liu, Tao Ji, **Changzhi Sun**, Yuanbin Wu, Aimin Zhou. “Investigating and Mitigating Object Hallucinations in Pretrained Vision-Language (CLIP) Models”. In: *the Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Nov. 2024.
- [C20] Nuwei Liu, Xinhao Chen, Hongyi Wu, **Changzhi Sun**, Man Lan, Yuanbin Wu, Xiaopeng Bai, Shaoguang Mao, Yan Xia. “CERD: A Comprehensive Chinese Rhetoric Dataset for Rhetorical Understanding and Generation in Essays”. In: *the Conference on Empirical Methods in Natural Language Processing (EMNLP)*. - Findings. Nov. 2024.
- [C19] Siyu Yuan, Jiangjie Chen, **Changzhi Sun**, Jiaqing Liang, Deqing Yang, Yanghua Xiao. “AnalogyKB: Unlocking Analogical Reasoning in Language Models with A Million-scale Knowledge Base”. In: *the 62th Annual Meeting of the Association for Computational Linguistics (ACL)* Aug. 2024.
- [C18] Yuxiang Song, Yuxuan Zheng, Shangqing Zhao, Shu Liu, Xinlin Zhuang, Zhaoguang Long, **Changzhi Sun**, Aimin Zhou, Man Lan. “A Lightweight and Effective Multi-View Knowledge Distillation Framework for Text-Image Retrieval”. In: *International Joint Conference on Neural Networks (IJCNN)*. Jun. 2024.
- [C17] Xinhao Chen, Chong Yang, **Changzhi Sun**, Man Lan, Aimin Zhou. “From Coarse to Fine: A Distillation Method for Fine-grained Emotion-Causal Span Pair Extraction in Conversation”. In: *the 39th Annual AAAI Conference on Artificial Intelligence (AAAI)*. Feb. 2024.
- [C16] Jiangjie Chen, Rui Xu, Wenxuan Zeng, **Changzhi Sun**<sup>†</sup>, Lei Li, Yanghua Xiao<sup>†</sup>. “Factual Error Correction via Iterative Constrained Editing”. In: *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI)*. Feb. 2023.
- [C15] Jiangjie Chen, Rui Xu, Ziquan Fu, Wei Shi, Zhongqiao Li, Xinbo Zhang, **Changzhi Sun**<sup>†</sup>, Lei Li, Yanghua Xiao<sup>†</sup>, Hao Zhou. “E-KAR: A Benchmark for Rationalizing Natural Language Analogical Reasoning”. In: *the 60th Annual Meeting of the Association for Computational Linguistics (ACL) - Findings*. May 2022.
- [C14] Yufang Liu, Ziyin Huang, Yijun Wang, **Changzhi Sun**, Man Lan, Yuanbin Wu, Xiaofeng Mou, Jian Tang. “Few Clean Instances Help Denoising Distant Supervision”. In: *the 29th International Conference on Computational Linguistics (COLING)*. Oct. 2022

- [C13] Siyin Wang, Jie Zhou, **Changzhi Sun**, Junjie Ye, Tao Gui, Qi Zhang, Xuanjing Huang. “Causal Intervention Improves Implicit Sentiment Analysis”. Long paper, COLING 2022 In: *the 29th International Conference on Computational Linguistics (COLING)*. Oct. 2022
- [C12] Jiangjie Chen, Qiaoben Bao, **Changzhi Sun**, Xinbo Zhang, Jiaze Chen, Hao Zhou, Yanghua Xiao, Lei Li. “Logic-Regularized Reasoning for Interpretable Fact Verification”. In: *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI)*. Feb. 2022
- [C11] Yijun Wang, **Changzhi Sun**<sup>†</sup>, Yuanbin Wu<sup>†</sup>, Zhao Zhou, Lei Li, Junchi Yan<sup>†</sup>. “ENPAR:Enhancing Entity and Entity Pair Representations for Joint Entity Relation Extraction”. In: *Proceedings of European Chapter of the Association for Computational Linguistics (EACL)*. Apr. 2021.
- [C10] Jie Zhou, Yuanbin Wu, **Changzhi Sun**, Liang He. “Is “hot pizza” Positive or Negative? Mining Target-aware Sentiment Lexicons“. In: *Proceedings of European Chapter of the Association for Computational Linguistics (EACL)*. Apr. 2021.
- [C9] Dongyu Ru, **Changzhi Sun**<sup>†</sup>, Jiangtao Feng, Lin Qiu, Hao Zhou, Weinan Zhang<sup>†</sup>, Yong Yu, Lei Li. “Learning Logic Rules for Document-Level Relation Extraction”. In: *the Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Nov. 2021.
- [C8] **Changzhi Sun**<sup>\*</sup>, Xinbo Zhang<sup>\*</sup>, Jiangjie Chen, Chun Gan, Yuanbin Wu, Jiaze Chen, Hao Zhou, Lei Li. “Probabilistic Graph Reasoning for Natural Proof Generation”. In: *the 59th Annual Meeting of the Association for Computational Linguistics (ACL) - Findings*. Aug. 2021
- [C7] Yijun Wang<sup>\*</sup>, **Changzhi Sun**<sup>\*</sup>, Yuanbin Wu, Zhao Zhou, Lei Li, Junchi Yan. “UniRE: A Unified Label Space for Entity Relation Extraction”. In: *the 59th Annual Meeting of the Association for Computational Linguistics (ACL)*. Aug. 2021.
- [C6] Yijun Wang, **Changzhi Sun**, Yuanbin Wu, Junchi Yan, Peng Gao, Guotong Xie. “Pre-training Entity Relation Encoder with Intra-span and Inter-span Information”. In: *the Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Nov. 2020.
- [C5] Tianyang Zhao, Haoyan Liu, Qianhui Wu, **Changzhi Sun**, Dongdong Zhan, Zhoujun Li. “BiGCNN:Bidirectional Gated Convolutional Neural Network for Chinese Named Entity Recognition”. In: *the 25th International Conference on Database Systems for Advanced Applications (DASFAA)*. Sep. 2020.
- [C4] **Changzhi Sun**, Yeyun Gong, Yuanbin Wu, Ming Gong, Daxin Jiang, Man Lan, Shiliang Sun, Nan Duan. “Joint Type Inference on Entities and Relations via Graph Convolutional Networks”. In: *the 57th Annual Meeting of the Association for Computational Linguistics (ACL)*. July. 2019.
- [C3] **Changzhi Sun**, Yuanbin Wu. “Distantly Supervised Entity Relation Extraction with Adapted Manual Annotations”. In: *the 33rd AAAI Conference on Artificial Intelligence (AAAI)*. Jan. 2019.
- [C2] **Changzhi Sun**, Yuanbin Wu, Man Lan, Shiliang Sun, Wenting Wang, Kuang-Chih Lee, Kewen Wu. “Extracting Entities and Relations with Joint Minimum Risk Training”. In: *the Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Oct. 2018.
- [C1] **Changzhi Sun**, Yuanbin Wu, Man Lan, Shiliang Sun, Qi Zhang. “Large-scale Opinion Relation Extraction with Distantly Supervised Neural Network”. In: *Proceedings of European Chapter of the Association for Computational Linguistics (EACL)*. Apr. 2017.

## PATENTS

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- [P4] **Changzhi Sun**, Dongyu Ru. “Method, device, equipment, and medium for relation extraction”. Pat. CN2021111612054. Sep. 2021
- [P3] **Changzhi Sun**, Xinbo Zhang, Hao Zhou, Lei Li. “Information processing method, device, and electronic equipment based on natural language inference”. Pat. CN2021107446583. Jul. 2021
- [P2] Yijun Wang, **Changzhi Sun**, Hao Zhou, Lei Li. “Information acquisition method and apparatus, device, and medium ”. Pat. CN2021107620486. Jul. 2021. (Pat. US20240273295A1. Jul. 2022)
- [P1] Xinbo Zhang, Jiangjie Chen, Qiaoben Bao, **Changzhi Sun**, Jiaze Chen, Hao Zhou, Yanghua Xiao, Lei Li. “Method, device, and apparatus for verifying veracity of statement, and medium”. Pat. CN2021113566258. Nov. 2021. (Pat. US20240296339A1. Nov. 2022)

## PROFESSIONAL SERVICE

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### ORGANIZERS:

- Organizer for 2014 China Conference on Knowledge Graph and Semantic Computing. Task: Assessment of Understanding and Reasoning Abilities in Traditional Chinese Medicine. 407 teams. (Hosted by ECNU & FDU & SHUTC)

### PROGRAM COMMITTEE:

- ARR, ACL, NeurIPS, ICML, ICLR, EMNLP, NAACL, AAAI, EACL, COLING, NLPCC.

### JOURNAL REVIEWER:

- CL

## STUDENTS ADVISING

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1. Daiye Miao (intern at TeleAI, ECNU master, Apr. 2025 - Present)
2. Jingyang Chen (intern at TeleAI, FDU Ph.D, Feb. 2025 - Aug. 2025)
3. Haolun Wu (intern at TeleAI, ECNU master, Oct. 2024 - Aug. 2025)
4. Jianhong Pang (intern at TeleAI, FDU master, May 2025 - Aug. 2025)
5. Yihua Wang (intern at TeleAI, USTC Ph.D, Feb. 2025 - Jul. 2025)
6. Nuowei Liu (ECNU master, Jul. 2023 - present)
7. Xinyu Wang (intern at TeleAI, ECNU Ph.D, Nov. 2024 - Jul. 2025)
8. Yihan Mei (intern at TeleAI, ECNU master, Nov. 2024 - Feb. 2025)
9. Jianxin Tang (ECNU Ph.D, Jul. 2023 - Oct. 2024)
10. Lingfeng Chen (ECNU Ph.D, Jul. 2023 - Oct. 2024)
11. Daohong Gong (ShanghaiTech Ph.D, Jul. 2023 - Oct. 2024)
12. Jiangjie Chen (intern at ByteDance, FDU Ph.D → ByteDance, Jul. 2021 - Jun. 2023)
13. Xuanta Lu (intern at ByteDance, FDU master → Xiaohongshu, Mar. 2022 - Jun. 2023)
14. Haoran Li (intern at ByteDance, HKUST Ph.D, Mar. 2022 - Aug. 2022)
15. Liping Yuan (intern at ByteDance, FDU master → ByteDance, Mar. 2022 - Dec. 2022)
16. Chi Han (intern at ByteDance, UIUC Ph.D, Jan. 2021 - Aug. 2021)
17. Dongyu Ru (intern at ByteDance, SJTU master → Amazon, Jan. 2021 - Jan. 2022)
18. Yijun Wang (intern at ByteDance, SJTU master → Tencent, Mar. 2021 - Dec. 2022)
19. Runxi Xu (intern at ByteDance, PKU master → DeepSeek, Sep. 2020 - Feb. 2021)