

YONG CAO

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Research Area and Interests

NLP, LLMs, AI for Science, Cultural Adaptation, Multilinguality, Dialogue System, Semantic Representation

Education

University of Tübingen

Postdoctoral Researcher, Supervisor: Andreas Geiger.

Sep 2024 – Now

Tübingen, Germany

University of Copenhagen

Visiting Ph.D. student, Supervisor: Daniel Hershcovich.

Nov 2022 – Apr 2024

Copenhagen, Denmark

Huazhong University of Science and Technology

Ph.D. student of Computer Science, Supervisor: Min Chen.

Sep 2018 – Jun 2024

Wuhan, China

Chinese University of Hong Kong, Shenzhen

Visiting Ph.D student, Supervisor: Kai Hwang.

Jul 2020 – Nov 2020

Shenzhen, China

Sichuan University

Bachelor of Telecommunication Engineering, Rank: 1/60 (1%).

Sep 2014 – Jun 2018

Sichuan, China

Experience

Alibaba-DAMO

Intern of NLP Algorithm Researcher

Jun 2022 – Oct 2022

Hangzhou, China

Xiaomi

Intern of NLP Algorithm Researcher

Nov 2021 – Jun 2022

Wuhan, China

Deepwisdom

Intern of NLP Algorithm Engineering

Jan 2021 – Jun 2021

Shenzhen, China

Published Paper

- Yong Cao**, Haijiang Liu, Arnav Arora, Isabelle Augenstein, Paul Röttger, Daniel Hershcovich. “Specializing Large Language Models to Simulate Survey Response Distributions for Global Populations”. NAACL 2025 Main.
- Yong Cao**, Ruixue Ding, Boli Chen, Xianzhi Li, Min Chen, Daniel Hershcovich, Pengjun Xie, Fei Huang. “Geo-Encoder: A Chunk-Argument Bi-Encoder Framework for Chinese Geographic Re-Ranking”. EACL 2024 Main.
- Yong Cao**, Yova Kementchedjheva, Ruixiang Cui, Antonia Karamolegkou, Li Zhou, Megan Dare, Lucia Donatelli, Daniel Hershcovich. “Cultural Adaptation of Recipes”. TACL.
- Yong Cao**, Min Chen, Daniel Hershcovich. “Bridging Cultural Nuances in Dialogue Agents through Cultural Value Surveys”. Findings of EACL 2024.
- Yong Cao**, Xianzhi Li, Huiwen Liu, Wen Dai, Shuai Chen, Bin Wang, Min Chen, Daniel Hershcovich. “Pay More Attention to Relation Exploration for Knowledge Base Question Answering”. Findings of ACL 2023.
- Yong Cao**, Li Zhou, Seolhwa Lee, Laura Cabello, Min Chen, Daniel Hershcovich. “Assessing Cross-Cultural Alignment between ChatGPT and Human Societies: An Empirical Study”. Workshop on Cross-Cultural Considerations in NLP, EACL 2023.
- Yong Cao**, Wei Li, Xianzhi Li, Min Chen, Guangyong Chen, Long Hu, Zhengdao Li, Hwang Kai. “Explore More Guidance: A Task-aware Instruction Network for Sign Language Translation Enhanced with Data Augmentation”. Findings of NAACL 2022.

8. **Yong Cao**, R. Wang, M. Chen, A. Barnawi. “AI Agent in Software-defined Network: Agent-based Network Service Prediction and Wireless Resource Scheduling Optimization”. IEEE Internet of Things Journal, 2019.
9. **Yong Cao**, Markus Flicke, Haoyu He, Katrin Renz, Andreas Geiger. “Modeling Multi-Scale Scientific Impact via Heterogeneous Networks and LLMs”. arXiv, 2025 (UnderReview).
10. **Yong Cao**, Wenyan Li, Jiaang Li, Yifei Yuan, Daniel Hershcovich. “Exploring Visual Culture Awareness in GPT-4V: A Comprehensive Probing”. arXiv, 2024.
11. Haoyu He, Katrin Renz, **Yong Cao**, Andreas Geiger. “MDPO: Overcoming the Training-Inference Divide of Masked Diffusion Language Models”. arXiv, 2025 (UnderReview).
12. Haijiang Liu, Qiyuan Li, Chao Gao, **Yong Cao**, Xiangyu Xu, Xun Wu, Daniel Hershcovich, Jinguang Gu. “MARK: Multi-stage Reasoning Framework for Personality-Driven Survey Simulation in Large Language Models”. EMNLP 2025 Main.
13. Haijiang Liu, **Yong Cao**, Xun Wu, Chen Qiu, Jinguang Gu, Maofu Liu, Daniel Hershcovich. “Towards Realistic Evaluation of Cultural Value Alignment in Large Language Models: Diversity Enhancement for Survey Response Simulation”. Information Processing & Management, 2025.
14. Markus Flicke, Glenn Angrabeit, Madhav Iyengar, Vitalii Protsenko, Illia Shakun, Jovan Cicvaric, Bora Kargi, Haoyu He, Lukas Schuler, Lewin Scholz, Kavyanjali Agnihotri, **Yong Cao**, Andreas Geiger. “Scholar Inbox: Personalized Paper Recommendations for Scientists”. ACL 2025 Demo.
15. Zhengdao Li, **Yong Cao**, Kefan Shuai, Yiming Miao, Kai Hwang. “Rethinking the Effectiveness of Graph Classification Datasets in Benchmarks for Assessing GNNs”. IJCAI 2024.
16. Li Zhou, Wenyu Chen, **Yong Cao**, etc. “MLPs Compass: What is Learned when MLPs are Combined with PLMs?”. ICASSP 2024.
17. Antonia Karamolegkou, Phillip Rust, **Yong Cao**, Ruixiang Cui, Anders Søgaard, Daniel Hershcovich. “Vision-Language Models under Cultural and Inclusive Considerations”. HuCLLM Workshop @ ACL 2024.
18. Steffen Eger, **Yong Cao**, Jennifer D’Souza, Andreas Geiger, Christian Greisinger, Stephanie Gross, Yufang Hou, Brigitte Krenn, Anne Lauscher, Yizhi Li, Chenghua Lin, Nafise Sadat Moosavi, Wei Zhao, Tristan Miller. “Transforming Science with Large Language Models: A Survey on AI-assisted Scientific Discovery, Experimentation, Content Generation, and Evaluation”. arXiv, 2024.
19. Tianshu Hao, Jianfeng Zhan, Kai Hwang, **Yong Cao**. “Edge AiBench: Scenario-Based AI Benchmarking for Cloud/Edge/Device Computing”. IEEE Transactions on Computers, 2023.
20. Tarik Alfif, Bander Alzahrani, **Yong Cao**, Reem Alotaibi, Ahmed Barnawi, Min Chen. “Generative Adversarial Network Based Abnormal Behavior Detection in Massive Crowd Videos: A Hajj Case Study”. Journal of Ambient Intelligence and Humanized Computing, 2021.
21. M. Chen, Y. Jiang, **Yong Cao**, A. Y. Zomaya. “CreativeBioMan: Brain and Body Wearable Computing based Creative Gaming System”. IEEE Systems, Man, and Cybernetics Magazine, 2020.
22. Rui Wang, **Yong Cao**, Adeeb Noor, Thamer A. Alamoudi, Redhwan Nour. “Agent-enabled Task Offloading in UAV-aided Mobile Edge Computing”. Computer Communications, 2019.
23. M. Chen, **Yong Cao**, R. Wang, Y. Li, D. Wu, Z. Liu. “DeepFocus: Deep Encoding Brainwaves and Emotions with Multi-scenario Behavior Analytics for Human Attention Enhancement”. IEEE Network, 2019.
24. Jun Yang, Jiayi Lu, Yiming Miao, Lu Wang, Yiting Zhao, **Yong Cao**. “The Effective Recycling of Crashed Drone Based on Machine Intelligence”. IWCMC 2018.

Academic Activities

Area Chair: ACL 2025, EMNLP 2025, ACL ARR.

Co-Organizer: Cross-Cultural Considerations in NLP workshop @ ACL 2024, @ NAACL 2025, @ ACL 2026.

Program Committee: AAAI 2022, 2023, 2024, EACL 2023, ARR 2024, CoLM 2024 2025, NeurIPS 2025, ICLR 2026.

Media: “Assessing Cross-Cultural Alignment between ChatGPT and Human Societies: An Empirical Study” was picked up by Politiken, Børsen, Ekstra Bladet, P1 Morgen, TV 2 (Denmark) and Science et Avenir (France).

Talk

2025.06, “Cultural Reliability of LLMs: Can AI Truly Reflect Global Perspectives?”, WDMD Workshop @ DSN, Naples, Italy.
2024.09, “Cultural Considerations in NLP”, Xiaomi, online.
2024.03, “Cultural Considerations in Large Language Models”, Max Planck Institute for Human Development, Berlin Germany.
2024.02, “Cultural Considerations in Dialogue Systems”, University of Marburg, Germany.
2023.10, “Cultural Adaptation of Large Language Models”, University of Copenhagen, Denmark.

Teaching

2025.10 (Upcoming) Seminar: LLM Research Assistants, University of Tübingen.
2025.10 (Upcoming) Bachelor Team Project, University of Tübingen.
2025.07 AI for Science, tutorial, IT:U Summer School, Linz, Austria.
2019.01 Big Data and Internet of Things, Co-lecturer with Prof. Min Chen, Huazhong University of Science and Technology.

Projects

Cultural Adaption in LLMs | *Copenhagen University* Nov 2022 - Apr 2024

- Consider the cultural difference in large language models (LLMs), and study the cultural alignment between LLMs and human societies based on human society surveys.
- Construct cultural adaption benchmark datasets, and propose solutions to the cultural adaptation on specific domains (e.g. recipe) and general domains (e.g. dialogue).

Modeling of Abnormal Behavior of Large-Scale Crowd | *Collaboration with KAUST* Dec 2019 - Dec 2022

- Collect large-scale crowd abnormal behavior benchmark dataset on hajj scenario.
- Design abnormal behavior classification algorithm based on the optical flow algorithm and GAN model.

Product of Sequence Tagging Based on AutoML | *Deepwisdom* Mar 2021 - May 2021

- Understand and be familiar with the research status of AutoML and Sequence Tagging algorithm.
- Develop sequence tagging product based on AutoML, and automatically construct the task pipeline in four stages: Data EDA, offline training, testing and online prediction. The algorithm is implemented based on PyTorch and Keras framework and is deployed through Docker.
- Expand the basic operators of the model to 30+, and evaluate the product performance based on 10+ benchmark.
- Seven basic NLP SaaS services are developed based on this product.

Resume Parsing System for Multi-Source Unstructured Data | *Deepwisdom* May 2021 - Jun 2021

- Build PDF parsing and word parsing operator based on the company’s resume data, extract information based on entity extraction algorithm and rule matching, and establish a resume parsing prototype system.
- Optimize specific rules for specific field extraction (eg. educational background and work experience), and merge the algorithm into the company’s platform.

Early Warning System and Intervention Strategy for Depression | *National key R&D plan* Nov 2018 - Jun 2021

- Develop collection and storage scheme of multi-modal dataset from real depression patients and normal volunteers.
- The depression diagnosis model was established based on EEG signal, near-infrared signal, video and audio data, and the depression diagnosis result was realized based on prediction fusion.
- Develop intelligent follow-up system, and construct the development of psychological counseling and intervention robot.

Honors and Awards

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| • 2025 DDSA Visiting Grant, Denmark | • 2019 Outstanding Student of HUST. |
| • 2023 DAAD AInet Fellow on Human-centered AI, Germany. | • 2018 Outstanding Graduates of SCU. |
| • 2023 Outstanding PhD Scholarship of HUST. | • 2017,2016 National Scholarship. |
| • 2021 International Youth Talent Fund by Zhejiang Lab, Hangzhou, China. | • 2017 Outstanding student cadre of SCU. |
| • 2020 Zhixing Scholarship of HUST. | • 2016 Excellent Paper Award in the National Mathematical Modeling Challenge. |
| | • 2015 Outstanding Students of SCU. |