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深圳大学软件工程系 副系主任
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简介

主要研究方向为知识与数据双驱动的人工智能方法，包括知识表示与推理，深度学习，知识图谱，以及人工智能在数据整合、自然语言处理、医疗等领域的应用。针对数据驱动的深度学习普遍存在的数据低质、训练低效、决策不可解释等问题，本人研究工作将知识驱动方法与数据驱动模型结合，从数据整合、模型训练、决策推理三方面进行了原创性的研究，形成了较为系统的理论与应用框架。

近年来发表论文三十余篇，其中以一作/通讯发表 Artificial Intelligence、IEEE TKDE、IJCAI、AAAI、ICDE 等 CCF-A 类论文 9 篇。主持国家自然科学基金、广东省自然科学基金等科研项目 7 项。曾获 IJCAI2020 机器智能测试竞赛(IJCAI MAIQ) Verbal 赛道冠军、Diagram 赛道冠军、腾讯犀牛鸟青年教师科研基金项目奖等科研奖项。曾担任欧洲电信标准化协会(ETSI/ETSI)专家组成员，国际会议 EAI/ICECI2021 举办方主席，常年担任 AAAI、IJCAI、ACL、NeurIPS、ICLR、ACL、EMNLP 等国际会议程序委员会成员/资深成员，以及 TKDE、Artificial Intelligence、Machine Learning、Data Intelligence 等期刊受邀审稿人，担任 CCF 人工智能与模式识别专委会委员、大数据专委会委员、物联网专委会委员。

本人教学能力突出，任职深圳大学期间，获得第二届全国教学创新大赛深圳大学二等奖、深圳大学优秀本科教师奖、深圳大学优秀本科课程奖、深圳大学计软学院最佳新人奖、第九届和第十届青年教师讲课竞赛学院二等奖等教学奖项。

研究兴趣

知识驱动与数据驱动融合的人工智能基础理论与应用：知识表示与推理、深度强化学习、知识图谱、自然语言处理、数据众包等

工作经历

2023.07 至今，深圳大学计算机与软件学院，副教授

2017.11 – 2023.06，深圳大学计算机与软件学院，助理教授

2020.02 – 2020.06，香港科技大学计算机科学与工程系，客座讲师（开设研究生课《Natural Language Processing》）

2016.03 – 2017.10, 香港科技大学工业工程与决策系, 博士后研究员

教育背景

2009.09 – 2016.02 香港科技大学计算机系博士 (导师: 林方真教授)

2005.09 – 2009.07 中国科技大学计算机系学士

科研奖项

- 2024.11 广东省人工智能产业协会科学技术奖一等奖
- 2021.01 CCF-A 类会议 IJCAI MAIQ 竞赛 Verbal 赛道冠军
- 2021.01 CCF-A 类会议 IJCAI MAIQ 竞赛 Diagram 赛道冠军
- 2018.06 腾讯犀牛鸟青年教师科研基金项目奖
- 2018.04 深圳市“孔雀计划”海外高层次人才
- 2024.09 指导学生获奖: 第 17 届中国大学生计算机设计大赛广东省三等奖
- 2023.09 指导学生获奖: 第 16 届中国大学生计算机设计大赛广东省三等奖
- 2022.08 指导学生获奖: 第 15 届中国大学生计算机设计大赛全国二等奖, 基于领域知识和多模态数据的可解释肺炎诊断系统 (该届比赛人工智能实践赛道深圳大学所获最高奖项)
- 2022.05 指导学生获奖: 蓝桥杯全国软件和信息技术专业人才大赛广东省二等奖
- 2022.05 指导学生获奖: 美国数学建模大赛 Finalist Mention 冠名奖 (全球前 2%, 该届比赛深圳大学所获最高奖项)
- 2022.06 指导学生获奖: 广东省大学生计算机设计大赛决赛二等奖, 基于领域知识和多模态数据的可解释肺炎诊断系统
- 2021.09 指导学生获奖: 第四届绽放杯 5G 应用大赛高校组三等奖, 基于知识引导和深度强化学习的服务对话机器人模型

教学奖项

- 2025 深圳大学计软学院“卓越系主任”
- 2024.10 深圳大学“名师讲座”优秀主讲人一等奖
- 2023.12 深圳大学“腾讯益友奖”优秀班主任
- 2023.10 深圳大学“名师进中学”优秀主讲人二等奖
- 2022.11 深圳大学优秀本科教师奖
- 2022.05 第二届全国高校教师教学创新大赛深圳大学二等奖
- 2021.04 深圳大学优秀本科课程奖
- 2019.12 深圳大学计算机与软件学院最佳新人奖 (全院每年一人)

- 2020.09 深圳大学年度考核优秀奖
- 2021.05 深圳大学第十届青年教师讲课竞赛学院二等奖
- 2019.06 深圳大学第九届青年教师讲课竞赛学院二等奖
- 2021.12 腾讯云人工智能特色班先进班集体

科研项目

- 国家自然科学基金青年项目，非单调推理在动作语言系统刻画中的理论与应用研究，2018.01 – 2021.12, PI
- 广东省自然科学基金面上项目，知识表示与推理在深度强化学习中的嵌入与整合，2022.01 – 2024.12, PI
- 深圳市海外高层次人才科研项目，基于推理的人工智能在动作语言系统中的应用，2020.01 – 2022.12, PI
- 国家自然科学基金联合重点项目，基于多维度深层次感知信息的社群情境计算，2020.01 - 2024.12, Co-I
- 雨燕基金（金融科技）项目，面向数字人经济大脑的知识表示与整合，2022.01 – 2022.12, PI
- 腾讯犀牛鸟青年教师科研项目，基于逻辑的人工智能在游戏 AI 中的应用，2019.01 - 2020.12, PI
- 深圳市高水平大学建设项目，知识规则干预的深度强化学习，2020.01 - 2022.12, PI
- 深圳大学青年教师启动项目，知识与推理干预的深度强化学习，2018.01 - 2020.12, PI
- 广东省重点研发项目，粤港澳大湾区突发急性传染病监测预警与紧急医学救援关键技术及装备的研发与示范，2020.01 - 2022.12, Co-I
- 广东省教育厅重点领域专项项目，基于振动信号的非接触式智能感知理论与应用技术研究，2022.01 - 2024.12, Co-I

发表论文

- [1] **Haodi Zhang**, Xiangyu Zeng, Junyang Chen, Yuanfeng Song, Rui Mao, Fangzhen Lin. Deduction with Induction: Combining Knowledge Discovery and Reasoning for Interpretable Deep Reinforcement Learning, in Proceedings of 34th International Joint Conference on Artificial Intelligence (**IJCAI 2025**, CCF-A 类会议)
- [2] Yichi Wang, Tian Huang, DanDan Huang, ZhaoHai Bai, Xuan Wang, Lin Ma, **Haodi Zhang***. Learning Dynamical Coupled Operator For High-dimensional Black-box Partial Differential Equations, in Proceedings of 34th International Joint Conference on Artificial Intelligence (**IJCAI 2025**, CCF-A 类会议)
- [3] **Haodi Zhang**, Jiawei Wen, Jiahong Li, Yuanfeng Song, Liangjie Zhang, Lin Ma. SSPNet: Leveraging Robust Medication Recommendation with History and Knowledge, in Proceedings of 34th International Joint Conference on Artificial Intelligence (**IJCAI 2025**, CCF-A 类会议)
- [4] Yuanfeng Song, Jinwei Lu*, Yuanwei Song, Caleb Chen Cao, Raymond Chi-

Wing Wong, **Haodi Zhang***. FeVisQA: Free-form Question Answering over Data Visualizations, in Proceedings of *IEEE International Conference on Data Engineering*, accepted (**ICDE 2025, CCF-A 类会议**)

- [5] Jinwei Lu, Yuanfeng Song*, **Haodi Zhang***, Chen Zhang, Kaishun Wu, Raymond Chi-Wing Wong. Towards Robustness of Text-to-Visualization Translation against Lexical and Phrasal Variability, in Proceedings of *IEEE International Conference on Data Engineering*, accepted (**ICDE 2025, CCF-A 类会议**)
- [6] **Haodi Zhang**, Xiangyu Zeng, Chen Zhang, Yuanfeng Song, Kaishun WU. HRLMS: A Data-driven Hierarchical Reinforcement Learning System for Interactive Rule Intervention and Visualization, in Proceedings of *IEEE International Conference on Data Engineering*, accepted (**ICDE 2025 Demo**)
- [7] Zhidan Liu, Yingqian Zhou, Xiaosi Liu, **Haodi Zhang**, Yabo Dong, Dongming Lu, Kaishun Wu. Learning Road Network Index Structure for Efficient Map Matching, in *IEEE Transactions on Knowledge and Data Engineering* 37(1): 423-437, 2025 (**TKDE, CCF-A 类期刊**)
- [8] **Haodi Zhang**, Yichi Wang, Yifan Jian, Jiahui Jiang, Zhaohai Bai, Lin Ma. Climate Downscaling Using Neural Operator: Spatiotemporal Multimodal Fusion Operator with State-Query Coupled Kernel, in Proceedings of *IEEE International Conference on Acoustics, Speech and Signal Processing*, accepted (**ICASSP 2025**)
- [9] **Haodi Zhang**, Junyu Yang, Jinyin Nie, Peirou Liang, Kaishun Wu, Defu Lian, Rui Mao and Yuanfeng Song. Efficient Data Labeling by Hierarchical Crowdsourcing with Large Language Models, in Proceedings of *International Conference on Computational Linguistics*, accepted (**COLING 2025**)
- [10] **Haodi Zhang**, Xinhe Zhang, Min Cai, Weicheng Wang, Yuanfeng Song. Prompt-Based Relation Extraction By Reasoning with Contextual Knowledge, in Proceedings of 29th *Pacific-Asia Conference on Knowledge Discovery and Data Mining* (**PAKDD 2025**)
- [11] **Haodi Zhang**, Yong Ding, Liang-Jie Zhang, Weicheng Wang, Yuanfeng Song, Di Jiang. Dual Learning between Molecules and Natural Language, in Proceedings of 29th *Pacific-Asia Conference on Knowledge Discovery and Data Mining* (**PAKDD 2025**)
- [12] **Haodi Zhang**, Xinrui Zhu, Xuan Wang, Hanlin Gu, Yuanfeng Song, Lin Ma. Natural Language to Overpass Query: A Multi-Step Approach Using Task Decomposition and Key-Value Correction, in Proceedings of 26th *IEEE International Conference on Mobile Data Management* (**MDM 2025**)
- [13] Yuanfeng Song, Jinwei Lu, Xuefang Zhao, Raymond Chi-Wing Wong, **Haodi Zhang***. Demonstration of FeVisQA: Free-Form Question Answering over Data Visualization, in Proceedings of *IEEE International Conference on Data Engineering*, accepted (**ICDE 2024 Demo**)
- [14] **Haodi Zhang**, Jinyin Nie, Zeming Liu, Dong Lei, and Yuanfeng Song. Automatic SQL Query Generation from Code Switched Natural Language Questions on Electronic Medical Records, in Proceedings of *IEEE International Conference on Bioinformatics and Biomedicine* (**BIBM 2024**)
- [15] **Haodi Zhang**, Junyu Yang, Wenxi Huang, Min Cai, Jiahong Li, Chen Zhang

- and Kaisu Wu. Recognizing Textual Entailment by Hierarchical Crowdsourcing with Diverse Labor Costs, in *Proceedings of 27th International Conference on Computer Supported Cooperative Work in Design*, accepted (CSCWD 2024)
- [16] **Haodi Zhang**, Wenxi Huang, Zhenhan Su, Junyang Chen, Di Jiang, Lixin Fan, Chen Zhang, Defu Lian and Kaishun Wu. Hierarchical Crowdsourcing for Data Labeling with Heterogeneous Crowd. *Proceedings of IEEE International Conference on Data Engineering*, accepted (ICDE 2023, CCF-A 类会议)
 - [17] **Haodi Zhang**, Jiahong Li, Yichi Wang, and Yuanfeng Song. Integrating Automated Knowledge Extraction with Large Language Models for Explainable Medical Decision-Making. *Proceedings of IEEE International Conference on Bioinformatics and Biomedicine*, accepted (IEEE BIBM 2023)
 - [18] Jin Zhang, Defu Lian, **Haodi Zhang**, Baoyun Wang, Enhong Chen. Query-aware Quantization for Maximum Inner Product Search. *Proceedings of the Thirty-Seventh AAAI Conference on Artificial Intelligence*, accepted (AAAI 2023, CCF-A 类会议)
 - [19] Chen Zhang[#], **Haodi Zhang**^{**}, Weiteng Xie, Nan Liu, Kaishun Wu and Lei Chen. Where To: Crowd-Aided Path Selection by Selective Bayesian Network. *IEEE Transactions on Knowledge and Data Engineering*, 35(1): 1072-1087, 2023 (TKDE, CCF-A 类期刊)
 - [20] Chen Zhang[#], **Haodi Zhang**^{**}, Qifan Li, Kaishun Wu, Di Jiang, Yuanfeng Song, Peiguang Lin, and Lei Chen. Burstiness-Aware Web Search Analysis on Different Levels of Evidences. *IEEE Transactions on Knowledge and Data Engineering*, 35(3): 2341-2352, 2023. (TKDE, CCF-A 类期刊)
 - [21] **Haodi Zhang**, Zhichao Zeng, Keting Lu, Kaishun Wu, Shiqi Zhang. Efficient Dialog Policy Learning by Reasoning with Contextual Knowledge. *Proceedings of the Thirty-Sixth AAAI Conference on Artificial Intelligence*, 2022:11667-11675 (AAAI 2022, CCF-A 类会议)
 - [22] Chen Zhang[#], **Haodi Zhang**^{**}, Weiteng Xie, Nan Liu, Qifan Li, Kaishun Wu, Di Jiang, Peiguang Lin and Lei Chen. Cleaning Uncertain Data with Crowdsourcing - a General Model with Diverse Accuracy Rates. *IEEE Transactions on Knowledge and Data Engineering* 34(8): 3629-3642, 2022 (TKDE, CCF-A 类期刊)
 - [23] **Haodi Zhang**, Chenyu Xu, Jiahong Li, Peirou Liang, Xiangyu Zeng, Hao Ren, Weibin Cheng, and Kaishun Wu. Explainable Pulmonary Disease Diagnosis with Prompt-Based Knowledge Extraction. *Proceedings of the IEEE International Conference on Bioinformatics and Biomedicine*, accepted, 2022 (BIBM 2022)
 - [24] Junyang Chen, Mengzhu Wang, **Haodi Zhang**, Zhiguo Gong, Zhidan Liu, Kaishun Wu, Victor Leung, IRLM. Inductive Representation Learning Model for Personalized POI Recommendation. *IEEE Transactions on Computational Social Systems* 2022, early access (TCSS)
 - [25] 张昊迪, 陈振浩, 陈俊扬, 周熠, 连德富, 伍楷舜, 林方真. 显式知识推理和深度强化学习结合的动态决策, *软件学报*, 006593:10.13328, 2022 (JOS, CCF-A 类中文期刊)
 - [26] **Haodi Zhang**, Chenyu Xu, Peirou Liang, Ke Duan, Hao Ren, Weibin Cheng, and Kaishun Wu. MMLN: Leveraging Domain Knowledge for Multimodal

Diagnosis. *Proceedings of the Eighteenth International Symposium on Bioinformatics Research and Applications*, accepted (**ISBRA 2022**)

- [27] Sheng Luo, **Haodi Zhang**, Qifan Li and Kaishun Wu. Knowledge-Assisted DRL for Energy Harvesting Based Multi-Access Wireless Communications. *Proceedings of IEEE International Conferences on High Performance Computing and Communications*, 2022:869-876 (**HPCC 2022**)
- [28] **Haodi Zhang**, Zhao Chen, Jinyin Nie, Di Jiang, Lixin Fan and Kaishun Wu. KnowledgeEnhanced Learning for KG Embedding. *Proceedings of the Twenty-Eighth IEEE International Conference on Parallel and Distributed Systems*, accepted (**ICPADS 2022**)
- [29] **Haodi Zhang**, Wenxi Huang, Chenyu Xu, Zhengbang Yang, Hongxin Zhou, Fengtian Qi, Kaishun Wu and Chen Zhang. Improving Confidence of Uncertain Knowledge Graphs by Crowdsourcing with Limited Budget. *Proceedings of the Twenty-Eighth IEEE International Conference on Parallel and Distributed Systems*, accepted (**ICPADS 2022**)
- [30] Zhidan Liu, Junhong Zheng, Zengyang Gong, **Haodi Zhang** and Kaishun Wu. Cleaning Uncertain Data with Crowdsourcing - a General Model with Diverse Accuracy Rates. *Proceedings of 26th International Conference of Database Systems for Advanced Applications*, 2021:491-508. (**DASFAA 2021**)
- [31] Hao Ren, Aslan B. Wong, Wanmin Lian, Weibin Cheng, Ying Zhang, Jianwei He, Qingfeng Liu, Jiasheng Yang, Chen Jason Zhang, Kaishun Wu, **Haodi Zhang***. Interpretable Pneumonia Detection by Combining Deep Learning and Explainable Models with Multisource Data. *IEEE Access* 9:95872-95883, 2021. (**JCR Q1**)
- [32] Shan Wang*, Zhao Chen, **Haodi Zhang***, Macau's Vocabulary Growth in the Recent Ten Year (In Chinese). *Proceedings of the 20th Chinese National Conference on Computational Linguistics*, 2021:350-360 (**CCL 2021**)
- [33] Zihang Gao, Fangzhen Lin, Yi Zhou, Hao Zhang, Kaishun Wu, **Haodi Zhang***. Embedding High-level Knowledge into DQNs to Learn Faster and More Safely. *Proceedings of the Thirty-Fourth AAAI Conference on Artificial Intelligence* (short paper) 2020:13608-13609. (**AAAI 2020**)
- [34] **Haodi Zhang**, Di Zhan, Chen Jason Zhang, Kaishun Wu, Ye Liu, Sheng Luo. Deep Reinforcement Learning-Based Access Control for Buffer-Aided Relaying Systems With Energy Harvesting. *IEEE Access* 8:145006-145017, 2020 (**JCR Q1**)
- [35] Yusen Liu, Fangyuan He, **Haodi Zhang**, Guozheng Rao, Zhiyong Feng, Yi Zhou. How Well Do Machines Perform on IQ tests: a Comparison Study on a Large-Scale Dataset. *Proceeding of International Joint Conference on Artificial Intelligence*, 2019:6110-6116 (**IJCAI 2019, CCF-A 类会议**)
- [36] Fangyuan He, Yi Zhou, **Haodi Zhang**, Zhiyong Feng. Dual-enhanced Word Representations Based on Knowledge Base. *Proceedings of the ISWC 2018 Industry and Blue Sky Ideas Tracks of the 17th International Semantic Web Conference 2018* (**ISWC 2018**)
- [37] **Haodi Zhang**, Fangzhen Lin. Characterizing causal action theories and their implementations in answer set programming. *Artificial Intelligence* 248: 1-8, 2017 (**AIJ, CCF-A 类期刊**)

- [38] **Haodi Zhang**, Yu Wang, Xiangtong Qi, Weiping Xu, Tao Peng, Shucheng Liu. An intent solver for enabling intent-based SDN, in *IEEE Conference on Computer Communications* (short paper) 2017: 968-969 (**INFOCOM 2017**)
- [39] **Haodi Zhang**, Fangzhen Lin: Mapping Action Language BC to Logic Programs. A Characterization by Postulates. *Proceeding of the AAAI Conference on Artificial Intelligence*, 2016:1116-1123. (**AAAI 2016, CCF-A 类会议**)
- [40] **Haodi Zhang**, Fangzhen Lin: Characterizing Causal Action Theories and Their Implementations in Answer Set Programming: Action Languages B, C, and Beyond. *Proceeding of International Joint Conference on Artificial Intelligence*, 2015:3285-3291 (**IJCAI 2015, CCF-A 类会议**)

专利

- 美国发明专利, **Haodi Zhang**, Xiangtong Qi, Tao Peng, Weiping Xu, Shucheng Liu. Network Service Management Method, Apparatus, and System (11153200), 2020.08, 已授权
- 中国发明专利, **张昊迪**, 任昊, 伍楷舜, 连万民, 一种辅助诊断方法及其应用, 2021.03, 实质审查
- 中国发明专利, **张昊迪**, 伍楷舜, 陈振浩, 非单调推理在逻辑动作语言系统刻画中的知识表示方法, 2021.01, 实质审查
- 中国发明专利, **张昊迪**, 伍楷舜, 陈振浩, 高子航, 李启凡, 一种基于深度强化学习的决策方法, 2020.10, 实质审查

学术活动

- 特邀报告 (Invited talks)
 - Knowledge Representation and Reasoning for Deep Learning in NLP, on *The 2nd Macau Symposium on Linguistics*, 2021 年 12 月 3 日, 澳门
 - Natural language processing: tasks, models and applications, on *The 2nd Interdisciplinary Frontier Forum*, 2021 年 11 月 24 日, 珠海
 - Leveraging Human Intelligence in Machine Learning for NLP, on *The 1st Macau Symposium on Linguistics*, 2020 年 12 月 4 日, 澳门
- 担任 EAI ICECI 2021 组委会主席
- 担任 CCF 人工智能与模式识别专委会委员、大数据专委会委员、物联网专委会委员
- 担任 Artificial Intelligence, Machine Learning, Data Intelligence 等国际期刊受邀审稿人
- 担任程序委员会成员/资深成员 (TPC Member/Senior TPC Member):
 - AAAI Conference on Artificial Intelligence (AAAI) 2023, 2022, 2021, 2020, 2019, 2018, 2015
 - International Joint Conference on Artificial Intelligence (IJCAI) 2022, 2021, 2020, 2019, 2018

- International Conference on Learning Representations (ICLR) 2023, 2022, 2021
- The Joint Conference of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (ACL) 2021
- The Conference on Neural Information Processing Systems (NeurIPS) 2022, 2021, 2020
- The Conference on Empirical Methods in Natural Language Processing (EMNLP) 2022, 2021, 2020
- International Conference on Principles of Knowledge Representation and Reasoning (KR) 2023, 2016, 2014

教学经历

2022 春	深圳大学	本科课程	编译原理	94.1/100
2022 春	深圳大学	研究生课程	组合数学	-
2021 秋	深圳大学	本科课程	离散数学	98.1/100 (Top 7.1%)
2020 秋	深圳大学	本科课程	离散数学	93.8/100
2020 秋	深圳大学	本科课程	自然语言处理	85.2/100
2020 春	香港科技大学	研究生课程	Natural Language Processing	-
2020 春	深圳大学	本科课程	编译原理	85.7/100
2019 秋	深圳大学	本科课程	离散数学	94.6/100
2019 春	深圳大学	本科课程	编译原理	100/100 (Top 0.7%)
2018 秋	深圳大学	本科课程	离散数学	93.6/100 (Top 9%)
2018 春	深圳大学	本科课程	编程语言	82.7/100