

EDUCATION

University of California, Los Angeles

Ph.D. in Computer Science, advisor: Professor Wei Wang

Los Angeles, CA, US

Sep. 2022 – Jun. 2027 (Expected)

Tsinghua University

B.S. in Mathematics, Minor in Philosophy

Beijing, CN

Aug. 2018–Jun. 2022

RESEARCH INTERESTS

- **Generative Models:** LLM (RL Post-training, Synthetic Data, Agents, Reasoning), AI for Science.
- **Machine Learning:** Reinforcement Learning, Optimization Methods.

PROFESSIONAL EXPERIENCE

Google

Student Researcher

Playa Vista, CA, US

Oct. 2025 – Current

Scale AI

Post-training Research Intern

San Francisco, CA, US

Jun. 2025 – Sep. 2025

SELECTED WORKS(THE ASTERISK * INDICATES EQUAL CONTRIBUTIONS)

Chasing the Tail: Effective Rubric-based Reward Modeling for Large Language Model Post-Training

Junkai Zhang*, Zihao Wang*, Lin Gui*, Swarnashree Mysore Sathyendra, Jaehwan Jeong, Victor Veitch, Wei Wang, Yunzhong He, Bing Liu, Lifeng Jin
in *submission*, available on arXiv

DuoGuard: A Two-Player RL-Driven Framework for Multilingual LLM Guardrails

Yihe Deng*, Yu Yang*, **Junkai Zhang***, Wei Wang, Bo Li
in *submission*, available on arXiv

PUBLICATIONS AND MANUSCRIPTS(THE ASTERISK * INDICATES EQUAL CONTRIBUTIONS)

AI for Science:

MatSciBench: Benchmarking the Reasoning Ability of LLM in Material Science

Junkai Zhang*, Jingru Gan*, Zian Jia, Changquan Gu, Jianpeng Chen, Xiaoxuan Wang, Yanqiao Zhu, Mingyu Derek Ma, Dawei Zhou, Ling Li, Wei Wang
in *submission*, available on arXiv

MetaScientist: A Human-AI Synergistic Framework for Automated Mechanical Metamaterial Design

Jingyuan Qi, Zian Jia, Minqian Liu, Wangzhi Zhan, **Junkai Zhang**, Xiaofei Wen, Jingru Gan, Jianpeng Chen, Qin Liu, Mingyu Derek Ma, Bangzheng Li, Haohui Wang, Adithya Kulkarni, Muhaao Chen, Dawei Zhou, Ling Li, Wei Wang, Lifu Huang
in *NAACL 2025 - Demo Track*

Protein Large Language Models: A Comprehensive Survey

Yijia Xiao, Wanjia Zhao, **Junkai Zhang**, Yiqiao Jin, Han Zhang, Zhicheng Ren, Renliang Sun, Haixin Wang, Guancheng Wan, Pan Lu, Xiao Luo, Yu Zhang, James Zou, Yizhou Sun, Wei Wang
in *EMNLP 2025 Findings*

MetamatBench: Integrating Heterogeneous Data, Computational Tools, and Visual Interface for Metamaterial Discovery

Jianpeng Chen, Wangzhi Zhan, Haohui Wang, Zian Jia, Jingru Gan, **Junkai Zhang**, Jingyuan Qi, Tingwei Chen, Lifu Huang, Muhaao Chen, Ling Li, Wei Wang, Dawei Zhou
in *KDD 2025 Datasets and Benchmarks Track*

Neural network-assisted personalized handwriting analysis for Parkinson's disease diagnostics
Guorui Chen, Trinny Tat, Yihao Zhou, Zhaoqi Duan, **Junkai Zhang**, Kamryn Scott, Xun Zhao, Zeyang Liu, Wei Wang, Song Li, Katy A. Cross, Jun Chen
in *Nature Chemical Engineering*

Continuous Treatment Effect Modeling in Multi-agent Dynamical Systems

Zijie Huang*, Jeehyun Hwang*, **Junkai Zhang***, Jinwoo Baik, Weitong Zhang, Quanquan Gu, Dominik Wodarz, Yizhou Sun, Wei Wang
in *ACM Web Conference (WWW) 2024*

Reinforcement Learning:

Uncertainty-Aware Reward-Free Exploration with General Function Approximation
Junkai Zhang*, Weitong Zhang*, Dongruo Zhou, Quanquan Gu
in *International Conference on Machine Learning (ICML) 2024*

Optimal Horizon-Free Reward-Free Exploration for Linear Mixture MDPs

Junkai Zhang, Weitong Zhang, Quanquan Gu
in *International Conference on Machine Learning (ICML) 2023*

Generative Models:

Fast Sampling via De-randomization for Discrete Diffusion Models
Zixiang Chen, Huizhuo Yuan, Yongqian Li, Yiwen Kou, **Junkai Zhang**, Quanquan Gu
in *Advances in Neural Information Processing Systems (NeurIPS) 2024*

Optimization Methods:

Why Does Sharpness-Aware Minimization Generalize Better Than SGD?
Zixiang Chen*, **Junkai Zhang***, Yiwen Kou, Xiangning Chen, Cho-Jui Hsieh, Quanquan Gu
in *Advances in Neural Information Processing Systems (NeurIPS) 2023*

TEACHING

Teaching Assistant at University of California, Los Angeles
Introduction to Computer Science I,II (CS 31/32)
Introduction to Algorithms and Complexity (CS180)

Fall 2023 - Spring 2025

ACADEMIC SERVICES

- **Conference Reviewer:** ICML[2025], ICLR[2024-2026], NeurIPS[2025], NAACL[2025], AAAI[2024-2025], AISTATS[2024]