

Junhao Liu Curriculum Vitae

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Google Scholar

Employment

06/2026 – **Meta**
present Research Scientist, Machine Learning
Threads

Education

09/2022 – **University of California, Irvine, CA, United States**
06/2026 Ph.D. in Computer Science
Donald Bren School of Information and Computer Sciences
Supervisor: Jing Zhang
Thesis: Generative Modeling for Multimodal Single-Cell and Genomic Data
Committee: Habiba Farrukh, Martin Renqiang Min

06/2022 **University of Chinese Academy of Sciences, Beijing, China**
M.E. in Natural Language Processing
Supervisor: Min Yang
Cumulative GPA: 3.79
National Scholarship of China, Special Award of the President of SIAT, Merit Student of UCAS, Outstanding Student Leader

06/2019 **South China University of Technology, Guangzhou, China**
B.E. in Intelligent Science and Technology
Cumulative GPA: 3.79
2nd in Class (2/55)

Past Employment

10/2025 – **NEC Laboratories America**
05/2026 Research Intern with Martin Renqiang Min

06/2025 – **GenBio AI**
09/2025 Research Scientist Intern with Caleb Ellington and Le Song

09/2022 – **University of California, Irvine**
05/2026 Graduate Student Researcher with Jing Zhang

09/2020 – **DAMO Academy, Alibaba**
02/2021 Research Intern with Lidong Bing

03/2020 – **Microsoft**
07/2020 Research Intern with Linjun Shou

09/2018 – **Guangzhou Automobile Group R&D Center**
02/2019 Machine Learning Engineer Intern, Autonomous Driving Laboratory

Selected Awards, Grants, and Fellowships

- 2024 Best Student Paper Award, Asian Conference on Machine Learning (ACML)
- 2022 Dean's Award, Information and Computer Sciences, UC Irvine
- 2022 Dean's Fellowship, Electrical and Computer Engineering, UC San Diego
- 2021, 2022 Merit Student of UCAS Award and Outstanding Student Leader Award
- 2021 National Scholarship of China
- 2020 AAAI Student Scholarship
- 2020 Special Award of the President of SIAT, Chinese Academy of Sciences
- 2018 Third Prize, Byte Cup International Machine Learning Contest (CAAI and ByteDance)
- 2018 Honorable Mention, MCM/ICM Mathematical and Interdisciplinary Contest in Modeling
- 2016, 2018 Merit Student of SCUT Award and Outstanding Student Leader Award
- 2017 Endress+Hauser SC China Scholarship

Peer-Reviewed Conference Publications

Google Scholar: <https://scholar.google.com/citations?user=IWWzX6cAAAAJ>

* denotes equal contributions.

- [C15] Simon Dongbo Sun, **Junhao Liu**, Pengcheng Xu, Yaqi Hu, Martin J. Zhang, Jing Zhang. MUGO: Differentiable Combinatorial Optimization for Causal Variant Discovery in the Non-coding Genome. In *The 32nd ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*. 2026
- [C14] Jiahao Zhao, Feng Jiang, Shaowei Qin, Zhonghui Zhang, **Junhao Liu**, Guibing Guo, Hamid Alinejad-Rokny, Min Yang. SC-Arena: A Natural Language Benchmark for Single-Cell Reasoning with Knowledge-Augmented Evaluation. In *International Conference on Learning Representations (ICLR)*. 2026
- [C13] **Junhao Liu**, Pengpeng Zhang, Martin Renqiang Min, Jing Zhang. Identifying Combinatorial Regulatory Genes for Cell Fate Decision via Reparameterizable Subset Explanations. In *The 31st SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*. 2025
- [C12] **Junhao Liu***, Pengpeng Zhang*, Siwei Xu, Jing Zhang. Multimodal Cell Context Instruction Tuning for Conditional DNA Regulatory Sequence Generation with Large Language Models. In *IEEE International Conference on Image Processing (ICIP)*. 2025
- [C11] Lei Zhang, Yunshui Li, Jiaming Li, Xiaobo Xia, Jiayi Yang, Run Luo, Minzheng Wang, Longze Chen, **Junhao Liu**, Min Yang. Hierarchical Context Pruning: Optimizing Real-World Code Completion with Repository-Level Pretrained Code LLMs. In *The 39th Annual AAI Conference on Artificial Intelligence (AAAI)*. 2025
- [C10] Yunshui Li, Binyuan Hui, Xiaobo Xia, Jiayi Yang, Min Yang, Lei Zhang, Shuzheng Si, Ling-Hao Chen, **Junhao Liu**, Tongliang Liu, Fei Huang, Yongbin Li. One-Shot Learning as Instruction Data Prospector for Large Language Models. In *The Annual Meeting of the Association for Computational Linguistics (ACL)*. 2024

- [C9] **Junhao Liu**^{*}, Siwei Xu^{*}, Dylan Riffle, Ziheng Duan, Martin Renqiang Min, Jing Zhang. Understanding Transcriptional Regulatory Redundancy by Learnable Global Subset Perturbations. In *Asian Conference on Machine Learning (ACML)*. 2024.
Best Student Paper Award
- [C8] Siwei Xu^{*}, **Junhao Liu**^{*}, Jing Zhang. scACT: Accurate Cross-Modality Translation via Cycle-Consistent Training from Unpaired Single-Cell Data. In *The 33rd ACM International Conference on Information and Knowledge Management (CIKM)*. 2024
- [C7] Lei Zhang, Yunshui Li, Ziqiang Liu, Jiaxi Yang, **Junhao Liu**, Min Yang. Marathon: A Race Through the Realm of Long Context with Large Language Models. In *The Annual Meeting of the Association for Computational Linguistics (ACL)*. 2024
- [C6] Yunshui Li, **Junhao Liu**, Min Yang, Chengming Li. Self-Distillation with Meta Learning for Knowledge Graph Completion. In *Findings of the Association for Computational Linguistics (EMNLP)*. 2022
- [C5] **Junhao Liu**, Zhen Hai, Min Yang, Lidong Bing. Multi-Perspective Coherent Reasoning for Helpfulness Prediction of Multimodal Reviews. In *The Annual Meeting of the Association for Computational Linguistics (ACL)*. 2021
- [C4] **Junhao Liu**, Linjun Shou, Jian Pei, Ming Gong, Min Yang, Daxin Jiang. Cross-Lingual Machine Reading Comprehension with Language Branch Knowledge Distillation. In *The International Conference on Computational Linguistics (COLING)*. 2020
- [C3] **Junhao Liu**, Kai Wang, Chunpu Xu, Zhou Zhao, Ruifeng Xu, Ying Shen, Min Yang. Interactive Dual Generative Adversarial Networks for Image Captioning. In *The AAAI Conference on Artificial Intelligence (AAAI)*. 2020
- [C2] Jian Wang, **Junhao Liu**, Wei Bi, Xiaojiang Liu, Ruifeng Xu, Kejing He, Min Yang. Dual Dynamic Memory Network for End-to-End Multi-Turn Task-Oriented Dialog Systems. In *The International Conference on Computational Linguistics (COLING)*. 2020
- [C1] Jian Wang, **Junhao Liu**, Wei Bi, Xiaojiang Liu, Ruifeng Xu, Kejing He, Min Yang. Improving Knowledge-Aware Dialogue Generation via Knowledge Base Question Answering. In *The AAAI Conference on Artificial Intelligence (AAAI)*. 2020

Journal Publications

- [J7] **Junhao Liu**, Siwei Xu, Dongbo Sun, Chaoyang Wang, Jing Zhang. Deep Learning for Psychiatric Genomics: From Tools to Applications. *Current Opinion in Genetics & Development*, 2026
- [J6] Guangyi Zhang, Yi Dai, Yiyun He, **Junhao Liu**. FL-Sailer: Efficient and Privacy-Preserving Federated Learning for Scalable Single-Cell Epigenetic Data Analysis via Adaptive Sampling. *Transactions on Machine Learning Research*, 2026
- [J5] **Junhao Liu**, Siwei Xu, Yongxian Wu, Jing Zhang. Single-Cell Omics Arena: Enabling Large Language Models for Automatic Cell Type Annotations on Single-Cell Omics Data via RNA-seq Bridging. *Briefings in Bioinformatics*, 2025
- [J4] Ziheng Duan, Dylan Riffle, Ren Li, **Junhao Liu**, Martin Renqiang Min, Jing Zhang. Impeller: A Path-Based Heterogeneous Graph Learning Method for Spatial Transcriptomic Data Imputation. *Bioinformatics*, 2024

- [J3] Prashant S. Emani, **Junhao Liu**, Mark Gerstein, et al. Single-Cell Genomics and Regulatory Networks for 388 Human Brains. *Science*, 2024.
Featured on the Cover
- [J2] **Junhao Liu**, Min Yang, Chengming Li, Ruifeng Xu. Improving Cross-Modal Image-Text Retrieval with Teacher-Student Learning. *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)*, 2020
- [J1] Min Yang, **Junhao Liu**, Ying Shen, Zhou Zhao, Xiaojun Chen, Qingyao Wu, Chengming Li. An Ensemble of Generation- and Retrieval-Based Image Captioning with Dual Generator Generative Adversarial Network. *IEEE Transactions on Image Processing (TIP)*, 2020

Workshop Publications

- [W1] **Junhao Liu**, Siwei Xu, Dylan Riffle, Ziheng Duan, Jing Zhang. Learnable Subset Perturbations for Understanding Transcriptional Regulatory Redundancy. In *NeurIPS 2024 Workshop D3S3: Data-Driven and Differentiable Simulations, Surrogates, and Solvers*. 2024

Teaching

Teaching Assistant

Winter 2023 **Introduction to Discrete Mathematics**
Donald Bren School of Information and Computer Sciences, University of California, Irvine
Instructor: Jing Zhang

Fall 2022 **Introduction to Machine Learning**
Donald Bren School of Information and Computer Sciences, University of California, Irvine
Instructor: Padhraic Smyth

Mentoring

Ph.D. Students

- 06/2025 – **Yaqi Hu**
present UC Irvine CS Ph.D. student (advised by Jing Zhang)
- 12/2024 – **Pengcheng Xu**
present UC Irvine CS Ph.D. student (advised by Jing Zhang)

Predoctoral Students

- 09/2025 – **Diptanshu Sikdar**
06/2026 UC Irvine Undergraduate Student → Ph.D. Student at UC San Diego
- 01/2025 – **Mohan Yang**
06/2026 UC Irvine Undergraduate Student → Ph.D. Student at UCLA
- 01/2025 – **Kainoa Nishida**
06/2026 UC Irvine Undergraduate Student → Master's Student at Cornell Tech
- 09/2023 – **Pengpeng Zhang**
12/2024 UC Irvine Undergraduate Student → Master's Student at Yale University
- 01/2023 – **Yaqi Hu**
05/2024 USC Master's Student → Ph.D. Student at UC Irvine

Service

Research Community

- 2020 – present* **Conference Reviewer**
NeurIPS, KDD, ICCV, COLING, AISTATS, ICLR, ACL Rolling Review, ACL, EMNLP, AAAI, IEEE AIMHC
- 2020 – present* **Journal Reviewer**
IEEE Transactions on Cybernetics, IEEE Transactions on Circuits and Systems for Video Technology, IEEE Transactions on Cognitive and Developmental Systems, Pattern Recognition, Knowledge-Based Systems, Neurocomputing, Multimedia Systems