

Yiren Jian

Research Scientist

ByteDance Inc.

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I am a research scientist at ByteDance Inc., specializing in multi-modal foundational models. My research encompasses a broad spectrum of topics within machine learning, with a particular focus on computer vision, natural language processing, and computational science. Specifically, my work involves continual pre-training and instruction fine-tuning of generative visual-language models, as well as applying AI and ML in various scientific domains.

Professional Experience

Research Scientist, ByteDance Inc.

Develop open-sourced visual language models for multimodal understanding.

Manager: Hongxia Yang

Bellevue, WA

Feb. 2024 - Now

Research Scientist Intern, ByteDance Inc.

Develop efficient generative visual-language models based on LLM.

Advisor: Yunzhe Tao

Bellevue, WA

June. 2023 - Sept. 2023

Research Scientist Intern, Snap Research at Snap Inc.

Develop neural speakers for affective image captioning.

Advisor: Panos Achlioptas

Palo Alto, CA

June. 2022 - Sept. 2022

Research Scientist Intern, NEC Labs America

Develop physical-augmented ML models for precision immunotherapy.

Advisor: Martin Renqiang Min

Princeton, NJ

June. 2021 - Sept. 2021

Education

Dartmouth College

Doctor of Philosophy - Computer Science

Advisor: Soroush Vosoughi

Hanover, NH, USA

Sept. 2018 - Jan. 2024

The George Washington University

Master of Science - Biophysics

Advisor: Chen Zeng

Washington DC, USA

Sept. 2015 - May. 2017

Huazhong University of Science and Technology

Bachelor of Science - Physics

Thesis advisor: Yi Xiao

Wuhan, China

Sept. 2011 - May. 2015

Publications

InfiMM: Advancing Multimodal Understanding with an Open-Sourced Visual Language Model

[Findings of ACL 2024] Findings of the Association for Computational Linguistics

Haogeng Liu, Quanzeng You, Yiqi Wang, Xiaotian Han, Bohan Zhai, Yongfei Liu, Wentao Chen, **Yiren Jian**, Yunzhe Tao, Jianbo Yuan, Ran He, Hongxia Yang

Expedited Training of Visual Conditioned Language Generation via Redundancy Reduction

[ACL 2024, 🌟 oral presentation] The 62nd Annual Meeting of the Association for Computational Linguistics

Yiren Jian, Tingkai Liu, Yunzhe Tao, Chunhui Zhang, Soroush Vosoughi, Hongxia Yang

GEM: Generating Engaging Multimodal Content

[IJCAI 2024] International Joint Conference on Artificial Intelligence

Chongyang Gao, **Yiren Jian**, Natalia Denisenko, Soroush Vosoughi, V.S. Subrahmanian

Efficient and Effective Learning of Foundational Large Multi-Modal Models

Dartmouth College PhD Dissertations, 2024

Yiren Jian

RNet: a network strategy to predict RNA binding preferences

Briefings in Bioinformatics, 2024

Haoquan Liu, **Yiren Jian**, Jinxuan Hou, Ceng Zeng, Yunjie Zhao

Bootstrapping Vision-Language Learning with Decoupled Language Pre-training

[NeurIPS 2023, ✨ [spotlight](#)] Advances in Neural Information Processing Systems

Yiren Jian, Chongyang Gao, Soroush Vosoughi

Evaluation of DNA-protein complex structures using the deep learning method

Physical Chemistry and Chemical Physics, 2023

Chengwei Zeng[#], **Yiren Jian**[#], Chen Zhuo, Anbang Li, Chen Zeng, Yunjie Zhao

Knowledge from Large-Scale Protein Contact Prediction Models Can Be Transferred to the Data-Scarce RNA Contact Prediction Task

preprint, 2023

Yiren Jian[†], Chongyang Gao, Chen Zeng, Yunjie Zhao, Soroush Vosoughi[†]

Evaluating Native-like Structures of RNA-protein Complexes Through the Deep Learning Method

Nature Communications, 2023

Chengwei Zeng[#], **Yiren Jian**[#], Soroush Vosoughi, Chen Zeng, Yunjie Zhao

Non-Linguistic Supervision for Contrastive Learning of Sentence Embeddings

[NeurIPS 2022] Advances in Neural Information Processing Systems

Yiren Jian, Chongyang Gao, Soroush Vosoughi

T-Cell Receptor-Peptide Interaction Prediction with Physical Model Augmented Pseudo-Labeling

[KDD 2022, ✨ [oral presentation](#)] In Proceedings of the 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining

Yiren Jian, Erik Kruus, Martin Renqiang Min

Embedding Hallucination for Few-shot Language Fine-tuning

[NAACL 2022] In Proceedings of the 2022 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies

Yiren Jian, Chongyang Gao, Soroush Vosoughi

Contrastive Learning for Prompt-based Few-shot Language Learners

[NAACL 2022] In Proceedings of the 2022 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies

Yiren Jian, Chongyang Gao, Soroush Vosoughi

Label Hallucination for Few-Shot Classification

[AAAI 2022] Proceedings of the 36th AAAI Conference on Artificial Intelligence

Yiren Jian, Lorenzo Torresani

MetaPix: Domain Transfer for Semantic Segmentation by Meta Pixel Weighting

Image and Vision Computing, 2021

Yiren Jian, Chongyang Gao

Task Meta-Transfer from Limited Parallel Labels

Meta-Learning Workshop at Neural Information Processing Systems, 2020

Yiren Jian, Karim Ahmed, Lorenzo Torresani

DIRECT: RNA Contact Predictions by Integrating Structural Patter

BMC Bioinformatics, 2019

Yiren Jian, Xiaonan Wang, Jiadi Qiu, Huiwen Wang, Zhichao Liu, Yunjie Zhao, Chen Zeng

Trace, Machine Learning of Signal Images for Trace-Sensitive Mass Spectrometry: A Case Study from Single-Cell Metabolomics

Analytical Chemistry, 2019

Zhichao Liu, Erika P. Portero, **Yiren Jian**, Yunjie Zhao, Rosemary M. Onjiko, Chen Zeng, Peter Nemes

Design of Tat-activated Cdk9 Inhibitor

Journal of Peptide Research and Therapeutics, 2019

Yunjie Zhao, Hao Chen, Chenghang Du, **Yiren Jian**, Haotian Li, Yi Xiao, Mohammed Saifuddin, Fatah Kashanchi, and Chen Zeng

Rbind: Computational Network Method to Predict the Binding Sites of RNA Molecules

Bioinformatics, 2018

Kaili Wang[#], **Yiren Jian**[#], Huiwen Wang, Chen Zeng and Yunjie Zhao

Computational Study of Non-catalytic T-loop Pocket on CDK Proteins for Drug Development

Chinese Physics B, 2017

Huiwen Wang, Kaili Wang, Zeyu Guan, **Yiren Jian**, Ya Jia, Fatah Kashanchi, Chen Zeng, Yunjie Zhao

Network Analysis Reveals the Recognition Mechanism for Dimer Formation of Bulb-type Lectins

Scientific Report, 2017

Yunjie Zhao[#], **Yiren Jian**[#], Zhichao Liu, Hang Liu, Qin Liu, Chanyou Chen, Zhangyong Li, Lu Wang, H. Howie Huang, Chen Zeng

Patents

T-cell receptor repertoire selection prediction with physical model augmented pseudo-labeling (w/ NEC Labs America)

Academic Services

- 2024 **Invited Reviewer**, European Conference on Computer Vision
- 2024 **Invited Reviewer**, Conference on Language Modeling
- 2024 **Invited Reviewer**, International Conference on Machine Learning
- 2024 **Invited Reviewer**, International Conference on Learning Representations
- 2024 **Invited Reviewer**, Annual AAAI Conference on Artificial Intelligence
- 2023 **Invited Reviewer**, Northern European Journal of Language Technology
- 2023 **Invited Reviewer**, IEEE/CVF Winter Conference on Applications of Computer Vision
- 2023 **Invited Reviewer**, Conference on Neural Information Processing Systems
- 2023 **External Reviewer**, Annual Meeting of the Association for Computational Linguistics

Teaching Experience

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| 2019, 2021 Graduate Teaching Assistant , Deep Learning (graduate-level course) | <i>Dartmouth</i> |
| 2021-2023 Graduate Teaching Assistant , Machine Learning (graduate-level course) | <i>Dartmouth</i> |
| 2018 Graduate Teaching Assistant , Machine Learning (graduate-level course) | <i>Dartmouth</i> |
| 2015-2016 Graduate Teaching Assistant , University Physics (undergraduate course) | <i>GWU</i> |