

Yiren Jian

PhD Student

Computer Science, Dartmouth College

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My research spans a wide range of topics within the field of machine learning, focusing on computer vision, natural language processing and computational science. Specifically, my work involves the pre-training of generative visual-language models, the investigation of multi-modal sentence embeddings, the exploration of few-shot learning in both vision and language domains, as well as the application of AI and ML in scientific contexts.

Professional Experience

Research Scientist Intern, ByteDance/TikTok AML

Bellevue, WA

Develop efficient generative visual-language models based on LLM.

June. 2023 - Sept. 2023

Advisor: Yunzhe Tao and Hongxia Yang

Research Scientist Intern, Snap Research

Palo Alto, CA

Develop neural speakers for affective image captioning.

June. 2022 - Sept. 2022

Advisor: Panos Achlioptas

Research Scientist Intern, NEC Labs America

Princeton, NJ

Develop physical-augmented ML models for precision immunotherapy.

June. 2021 - Sept. 2021

Advisor: Martin Renqiang Min

Education

Dartmouth College

Hanover, NH, USA

Doctor of Philosophy - Computer Science

Sept. 2018 - Jan. 2024 (expected)

Advisor: Soroush Vosoughi

The George Washington University

Washington DC, USA

Master of Science - Biophysics

Sept. 2015 - May. 2017

Advisor: Chen Zeng

Huazhong University of Science and Technology

Wuhan, China

Bachelor of Science - Physics

Sept. 2011 - May. 2015

Thesis advisor: Yi Xiao

Publications

[P19] RNet: a network strategy to predict RNA binding preferences

Briefings in Bioinformatics, 2024

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

[P18] SimVLG: Simple and Efficient Pretraining of Visual Language Generative Models

preprint, 2023

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

[P17] Bootstrapping Vision-Language Learning with Decoupled Language Pre-training

Advances in Neural Information Processing Systems (NeurIPS 2023, Spotlight)

Yiren Jian, Chongyang Gao, Soroush Vosoughi

[P16] 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

[P15] 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[†]

[P14] 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

[P13] Non-Linguistic Supervision for Contrastive Learning of Sentence Embeddings

Advances in Neural Information Processing Systems (NeurIPS 2022)

Yiren Jian, Chongyang Gao, Soroush Vosoughi

[P12] T-Cell Receptor-Peptide Interaction Prediction with Physical Model Augmented Pseudo-Labeling

In Proceedings of the 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2022, Oral Presentation)

Yiren Jian, Erik Kruus, Martin Renqiang Min

[P11] Embedding Hallucination for Few-shot Language Fine-tuning

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

Yiren Jian, Chongyang Gao, Soroush Vosoughi

[P10] Contrastive Learning for Prompt-based Few-shot Language Learners

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

Yiren Jian, Chongyang Gao, Soroush Vosoughi

[P9] Label Hallucination for Few-Shot Classification

Proceedings of the 36th AAAI Conference on Artificial Intelligence (AAAI 2022)

Yiren Jian, Lorenzo Torresani

[P8] MetaPix: Domain Transfer for Semantic Segmentation by Meta Pixel Weighting

Image and Vision Computing, 2021

Yiren Jian, Chongyang Gao

[P7] Task Meta-Transfer from Limited Parallel Labels

Meta-Learning Workshop at Neural Information Processing Systems, 2020

Yiren Jian, Karim Ahmed, Lorenzo Torresani

[P6] 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

[P5] 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

[P4] 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

[P3] 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

[P2] 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

[P1] 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 (NEC Labs America)

Academic Services

- 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) | Dartmouth |
| 2021-2023 | Graduate Teaching Assistant , Machine Learning (graduate-level course) | Dartmouth |
| 2018 | Graduate Teaching Assistant , Machine Learning (graduate-level course) | Dartmouth |
| 2015-2016 | Graduate Teaching Assistant , University Physics (undergraduate course) | GWU |