Xiao Wang

wang3702@uw.edu · Xiao Wang · GitHub · Website · Google Scholar

Education

Purdue University, West Lafayette, U.S. Aug, 2018 – Dec, 2023

Ph.D. in Computer Science

Xi'an JiaoTong University, Xi'an, China Aug, 2014 – June, 2018

B.S. in Computer Science

Honors and Awards

UW Data Science Postdoctoral Fellow 2024
NSF MolSSI Graduate Fellowship (10 across U.S, $80,000) 2022
Chiang Chen Overseas Fellowship (10 across China, $50,000) 2018
HIWIN Outstanding Student Scholarship (Top 0.3% , $10,000 CNY) 2018
Top 10 Outstanding Undergraduate of Xi'an Jiaotong University 2017
National Scholarship (Top 1%, $8,000 CNY) 2016

Experience

Noble Lab, Seattle, U.S Jan, 2024 – Present

Postdoctoral Scholar Advisor: Prof. William Stafford Noble and Sheng Wang

Understanding genome architecture and functions by foundation models.

Facebook AI Research, Menlo Park, U.S May, 2021 – Aug, 2021

Research Scientist Intern Advisor: Dr. Xinlei Chen, Dr. Yuandong Tian, Haoqi Fan

Asymmetrical representation learning

Kihara Bioinformatics Lab,West Lafayette, U.S Aug, 2018 – Dec, 2023

Ph.D. Research Assistant Advisor: Prof. Daisuke Kihara

Macromolecule structure prediction, modeling and evaluation by deep learning

JD AI Research, Mountain View, U.S May, 2020 – Dec, 2020

Research Scientist Intern Advisor: Dr. Jingen Liu, Prof. Jiebo Luo

Temporal video event segmentation via self-supervised learning

Futurewei AI Lab, Bellevue, U.S May, 2019 – August, 2019

Research Scientist Intern Advisor: Prof. Guojun Qi, Prof. Jiebo Luo

Self-supervised learning and semi-supervised learning.

Research Interests

AI for biology, *Representation learning*, *Generative modeling*

Selected publications

* denotes equal contribution.

- **Xiao Wang**, Yuanyuan Zhang, Suhita Ray, Anupama Jha, Tangqi Fang, Shengqi Hang, Sergei Doulatov, William Stafford Noble, Sheng Wang. "A generalizable Hi-C foundation model for chromatin architecture, single-cell and multi-omics analysis across species". ***bioRxiv***. (2025).
  [AI for biology], [Representation learning], [Generative modeling], [Paper], [GitHub], [Colab]

- Huaizhi Qu*, **Xiao Wang***, Yuanyuan Zhang, Sheng Wang, William Stafford Noble, Tianlong Chen. "CryoNeRF: generalizable automated cryo-EM reconstruction using neural radiance field". ***bioRxiv***. (2025).
  [AI for biology], [Representation learning], [Paper], [GitHub]
- Yang Hu*, **Xiao Wang***, Zezhen Ding, Lirong Wu, Huatian Zhang, Stan Z. Li, Sheng Wang, Jiheng Zhang, Ziyun Li, Tianlong Chen. "FlowTS: Time Series Generation via Rectified Flow". ***Arxiv***. (2025).
  [Generative modeling], [Paper], [GitHub]
- **Xiao Wang**, Han Zhu, Genki Terashi, Manav Taluja, Daisuke Kihara. "DiffModeler: large macromolecular structure modeling for cryo-EM maps using a diffusion model". ***Nature Methods***. (2024).
  [AI for biology], [Generative modeling], [Paper], [GitHub], [Server]
- **Xiao Wang**, Ying Wang, Ziwei Xuan, Guo-Jun Qi. "AdPE: Adversarial Positional Embeddings For MIM Pretraining of Transformers". ***Arxiv***. (2024).
  [Representation learning], [Generative modeling], [Paper], [GitHub]
- **Xiao Wang**, Genki Terashi, Daisuke Kihara. "CryoREAD: DNA/RNA dE novo Atomic structure moDeling in cryo-EM maps with deep learning". ***Nature Methods***. (2023).
  [AI for biology], [Paper], [GitHub], [Colab], [Server]
- **Xiao Wang**, Yuhang Huang, Dan Zeng, Guo-Jun Qi. "CaCo: Both Positive and Negative Samples are Directly Learnable via Cooperative-adversarial Contrastive Learning". *IEEE Transactions on Pattern Analysis and Machine Intelligence (**IEEE T-PAMI**)*. (2023).
  [Representation learning], [Paper], [GitHub]
- **Xiao Wang**, Jingen Liu, Tao Mei, Jiebo Luo. CoSeg: "Cognitively Inspired Unsupervised Generic Event Segmentation". *IEEE Transactions on Neural Networks and Learning Systems (**IEEE TNNLS**)*. (2023).
  [Representation learning], [Paper], [GitHub]
- Genki Terashi*, **Xiao Wang***, Sai Raghavendra Maddhuri Venkata Subramaniya, John J. G. Tesmer, Daisuke Kihara. "Residue-Wise Local Quality Estimation for Protein Models from Cryo-EM Maps." ***Nature Methods***. (2022).
  [AI for biology], [Paper], [GitHub], [Colab], [Server]
- **Xiao Wang**, Guo-Jun Qi. "Contrastive Learning with Stronger Augmentations". *IEEE Transactions on Pattern Analysis and Machine Intelligence (**IEEE T-PAMI**)*. (2022).
  [Representation learning], [Paper], [GitHub]
- **Xiao Wang***, Haoqi Fan*, Yuandong Tian, Daisuke Kihara, Xinlei Chen. "On the Importance of Asymmetry for Siamese Representation Learning". *IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR 2022**)*.
  [Representation learning], [Paper], [GitHub]
- **Xiao Wang**, Eman Alnabati, Tunde W Aderinwale, Sai Raghavendra Maddhuri Venkata Subramaniya, Genki Terashi, Daisuke Kihara. "Emap2sec+: Structure Detection in Intermediate Resolution Cryo-EM Maps Using Deep Learning". ***Nature Communications***. (2021).
  [AI for biology], [Paper], [GitHub], [Colab], [CodeOcean], [Server]
- Qianjiang Hu*,**Xiao Wang***, Wei Hu, Guo-Jun Qi. AdCo: "Adversarial Contrast for Efficient Learning of Unsupervised Representations from Self-Trained Negative Adversaries". *IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR 2021**)*.
  [Representation learning], [Paper], [GitHub].
- **Xiao Wang**, Daisuke Kihara, Jiebo Luo, Guo-Jun Qi. "Enaet: Self-trained ensemble autoencoding transformations for semi-supervised learning". *IEEE Transactions on Image Processing (**IEEE TIP**)*. (2020).
  [Representation learning], [Paper], [GitHub]

For full list of publications, please see Google Scholar

Professional Services

Associate Editor

IEEE Transactions on Intelligent Vehicles (IEEE-T-IV)

Reviewer

Journal or Conference	2019	2020	2021	2022	2023	2024	2025
IEEE Transactions on Pattern Analysis and Machine Intelligence				1	1	3	
Nature Methods				1	1	1	
Nature Communications						1	
Science Advances							1
IEEE Transactions on Image Processing	4	1	1	4	3	1	
IEEE Transactions on Multimedia				4	2		
IEEE Transactions on Intelligent Vehicles						2	
ACM Transactions on Knowledge Discovery from Data			2	3	4		
Artificial Intelligence					1	1	
Enineering Applications of Artificial Intelligence				1	2	1	
Nature Communications Biology						2	
Information Processing and Management					3		
Pattern Recognition			1	3	1	3	
Bioinformatics			1	1		2	
Information Sciences						1	
IEEE Transactions on Intelligent Transportation Systems	5	5	3	2	2	8	
IEEE Transactions on Reality					1	1	
IEEE Intelligent Systems			1	1			
Frontiers in Bioinformatics			1				
Conference on Neural Information Processing Systems (NeurIPS)	1		1				
Conference on Computer Vision and Pattern Recognition (CVPR)			2	5	5	6	4
International Conference on Computer Vision (ICCV)			2		5		
European Conference on Computer Vision (ECCV)				8		5	
International Conference on Learning Representations (ICLR)						3	
Research in Computational Molecular Biology (RECOMB)					5	3	
4DN Annual Meeting						10	
Total	10	6	15	34	32	54	

Teaching & Mentoring Experience

Teaching

Java Programming, XJTU Spring 2017

Role: undergraduate TA (5 hour/week). This was a 50-student undergraduate course and I am responsible for java instruction and homework.

Computing for Life Sciences, Purdue Fall 2019, Fall 2023

Role: Tutor for some courses (5 courses in total). This is a 20-student graduate course and I am responsible for teaching Python programming.

Guest Lecture

Traffic Flow Theory, Tsinghua April, 7th, 2020

Molecular Sciences, Virginia Tech July, 25th, 2020

Mentoring

Huaizhi Qu, graduate from University of North Carolina at Chapel Hill 2024-2025

Yang Hu, graduate from Westlake University 2024-2025

Yasmine Shubber, undergraduate from University of Washington 2024-2024

Javad Baghirov, undergraduate from Purdue University 2023-2023

Grace Su, undergraduate from Columbia University 2021-2022

Yunhan Huang, undergraduate student from Purdue University 2021-2022

Yuhang Huang, undergraduate from Shanghai University 2021-2022

Rohan Raghavan Narasimha, M.S. graduate student from Purdue University 2020-2021

Qianjiang Hu, undergraduate from Peking University 2020-2021

Yilin He, undergraduate summer intern from Shandong University 2019

Yiwei Zhang, undergraduate summer intern from Rensselaer Polytechnic Institute 2019