

Yunchao (Lance) Liu

CONTACT INFORMATION	Office: 5154G Medical Research Building III 465 21st Ave S Nashville, TN 37212 E-mail: yunchao.liu@vanderbilt.edu	Homepage: http://www.LiuYunchao.com LinkedIn: http://www.linkedin.com/in/YunchaoLiu/ GitHub: https://github.com/LanceKnight Google Scholar: http://scholar.google.com/citations?user=oFtWfwAAAAJ&hl=en
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EDUCATION	Vanderbilt University <ul style="list-style-type: none">• Doctor of Philosophy (Ph.D.) student in Computer Science Aug 2018 – Present• Advisors: Dr. Jens Meiler, Dr. Tyler Derr• Cumulative GPA: 3.92 / 4.00	
	University of Texas at Dallas <ul style="list-style-type: none">• Master of Science (M.S.) in Computer Science May 2015• Cumulative GPA: 3.85 / 4.0	
	Beijing University of Posts and Telecommunications <ul style="list-style-type: none">• Bachelor of Science (B.S.) in Management Sep 2013	
RESEARCH EXPERIENCE	Meiler Lab, Vanderbilt University PhD Candidate, Computer Science Department Sep 2018 – Present <ul style="list-style-type: none">• Advisors: Dr. Jens Meiler, Dr. Tyler Derr, Dr. Bobby Bodenheimer• Research Interests: AI for Drug Design, Topological/Geometric Deep Learning, Generative Models, Self-Supervised Learning, Small Molecules/Proteins	
	State Key Laboratory of Intelligent Technology and Systems, Tsinghua University Research Assistant, Department of Computer Science and Technology Jul 2012 – Mar 2013 <ul style="list-style-type: none">• Advisor: Dr. Xiaolin Hu• Research Interests: Visual Saliency for Road Sign Detection	
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PUBLICATIONS	Yunchao Liu , Yu Wang, Oanh Vu, Rocco Moretti, Bobby Bodenheimer, Jens Meiler and Tyler Derr. Interpretable Chirality-Aware Graph Neural Network for Quantitative Structure Activity Relationship Modeling in Drug Discovery. Preceedings of the 37th Association for the Advancement of Artificial Intelligence (AAAI), 2023.	
	Yunchao Liu , Rocco Moretti, Bobby Bodenheimer and Jens Meiler. Foldit Drug Design Game Usability Study: Comparison of Citizen and Expert Scientists. Preceedings of the 13th Annual ACM SIGGRAPH Conference on Motion, Interaction and Games (MIG), 2020.	
	Yu Wang, Tong Zhao, Yuying Zhao, Yunchao Liu , Xueqi Cheng, Neil Shah, Tyler Derr A Topological Perspective on Demystifying GNN-Based Link Prediction Performance International Conference on Learning Representations (ICLR), 2024.	
PREPRINTS	Yunchao Liu , Rocco Moretti, Yu Wang, Bobby Bodenheimer, Tyler Derr and Jens Meiler. Integrating Expert Knowledge with Deep Learning Improves QSAR Models for CADD Modeling bioRxiv, 2023.	
	Yuying Zhao, Yu Wang, Yunchao Liu , Xueqi Cheng, Charu Aggarwal, Tyler Derr Fairness and Diversity in Recommender Systems: A Survey arXiv, 2023.	
HONORS & AWARDS	• Finalist of Vanderbilt Three Minute Thesis Competition	Nov 2023
	• AAAI2023 student scholarship travel award	Dec 2022
	• Reviewer Award @ ICML-AI4Science	Jun 2022
	• Nvidia Hardware Grant (RTX A6000)	Mar 2022
TEACHING	• Guest Speaker @ DS 3891: Intro to Generative Artificial Intelligence Models	Mar 2024
	• RFDiffusion @ Rosetta Workshop	Dec 2023

SERVICES**Journal Reviewer**

- ACM Computing Surveys 2024
- Information Fusion 2024
- Big Data Research 2024
- International Journal of Electrical and Computer Engineering (IJECE) 2024
- Information Fusion 2023
- Journal of Computational Biophysics and Chemistry 2023
- ACM Transactions on Knowledge Discovery from Data (TKDD) 2023
- Big Data Research 2022

Conference Reviewer

- 46th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC) 2024
- New Frontiers of AI for Drug Discovery and Development (AI4D3) @ Conference on Neural Information Processing Systems (NeurIPS) 2023
- AI4Science @ Conference on Neural Information Processing Systems (NeurIPS) 2023
- Generative AI and Biology (GenBio) @ Conference on Neural Information Processing Systems (NeurIPS) 2023
- Structured Probabilistic Inference & Generative Modeling (SPIGM) @ International Conference on Machine Learning (ICML) 2023
- SIAM International Conference on Data Mining (SDM) 2023
- Machine Learning on Graphs @ ACM International Conference on Web Search and Data Mining (WSDM) 2023
- AI4Science @ International Conference on Machine Learning (ICML) 2023
- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2023
- Association for the Advancement of Artificial Intelligence (AAAI) 2023
- ACM International Conference on Web Search and Data Mining (WSDM) 2023
- Machine Learning on Graphs @ International Conference on Data Mining (ICDM) 2022
- AI4Science @ Conference on Neural Information Processing Systems (NeurIPS) 2022
- AI4Science @ International Conference on Machine Learning (ICML) 2022
- Deep Generative Models for Highly Structured Data (DGM4HSD) @ International Conference on Learning Representations (ICLR) 2022
- Conference on Neural Information Processing Systems (NeurIPS) 2022
- Machine Learning on Graphs (MLoG) @ ACM International Conference on Web Search and Data Mining (WSDM) 2022
- ACM The Web Conference (TheWebConf) 2022
- International Conference on Learning Representations (ICLR) 2022
- ACM International Conference on Web Search and Data Mining (WSDM) 2022
- ACM International Conference on Information and Knowledge Management (CIKM) 2021
- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2021
- AI4Science @ Conference on Neural Information Processing Systems (NeurIPS) 2021

Chairship

- Publicity Chair at Machine Learning on Graphs (MLoG) Workshop at ICDM'23 2023
- Publicity Chair at Machine Learning on Graphs (MLoG) Workshop at WSDM'23 2023

Program Committee

- Graph Techniques for Adversarial Activity Analytics (GTA3) @ IEEE Big Data Conference 2023
- Graph Techniques for Adversarial Activity Analytics (GTA3) @ IEEE Big Data Conference 2022

Volunteering

- Volunteer at New Frontiers of AI for Drug Discovery and Development (AI4D3) @ NeurIPS 2023
- Session Chair at Association for the Advancement of Artificial Intelligence (AAAI) 2023
- Volunteer at Association for the Advancement of Artificial Intelligence (AAAI) 2023
- Volunteer at International Conference on Learning Representations (ICLR) 2022
- Session Manager at ACM International Conference on Web Search and Data Mining (WSDM) 2022

MENTORING**Data Science Institute, Vanderbilt University**

- LeyaoWang (Laura) Wang, B.S. Computer Science, from Vanderbilt University 2024 Spring

- Data Science Institute**, Vanderbilt University
- Xiaohan Kuang, M.S. Computer Science, from Vanderbilt University 2023 Fall
 - Yuhao Zhang, M.S. Computer Science, from Vanderbilt University 2023 Fall
- Network and Data Science Lab**, Vanderbilt University
- Meilin Guo, M.S. Computer Science, from Columbia University 2023 Summer
- Meiler Lab**, Vanderbilt University
- Ha Dong, B.S. Neuroscience & Physics, from Amherst College 2023 Summer

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- INVITED TALKS**
- Molecular-Kernel Graph Neural Network for Drug Discovery Jun 2023
- Max Planck Institute for Mathematics in the Sciences
 - Leipzig, Germany
- Interpretable Chirality-Aware Graph Neural Network for Quantitative Structure Activity Relationship Modeling in Drug Discovery. Mar 2023
- Molecular Modeling & Drug Discovery Talks (Organized by Mila & Valence Discovery)
 - Virtual Event
- Interpretable Chirality-Aware Graph Neural Network for Quantitative Structure Activity Relationship Modeling in Drug Discovery. Feb 2023
- The 37th AAAI conference on artificial intelligence
 - Walter E. Washington Convention Center, Washington, DC, USA
- Foldit Drug Design Game Usability Study: Comparison of Citizen and Expert Scientists Oct 2020
- ACM SIGGRAPH Conference on Motion, Interaction and Games (MIG)
 - Zucker Family Graduate Education Center (virtual due to COVID-19)

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- PRESENTATIONS & POSTERS**
- Yunchao Liu, Yu Wang, Oanh Vu, Rocco Moretti, Bobby Bodenheimer, Jens Meiler and Tyler Derr. Interpretable Chirality-Aware Graph Neural Network for Quantitative Structure Activity Relationship Modeling in Drug Discovery *Learning on Graphs Conference (LoG)*, Poster 2022.
- Yunchao Liu, Yu Wang, Oanh Vu, Rocco Moretti, Bobby Bodenheimer, Jens Meiler and Tyler Derr. Interpretable Chirality-Aware Graph Neural Network for Quantitative Structure Activity Relationship Modeling in Drug Discovery *Summer RosettaCon*, Poster 2022.
- Yunchao Liu, Rocco Moretti, Bobby Bodenheimer, Jens Meiler. Foldit Drug Design Game Usability Study: Comparison of Citizen and Expert Scientists, *ACM SIGGRAPH Conference on Motion, Interaction and Games (MIG)*, Presentation, 2020.

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- REFERENCES** Available Upon Request