

# Haoran Liu

Department of Computer Science and Engineering  
Texas A&M University

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## Education

- **Texas A&M University** 2021 - Now  
Ph.D. in Computer Science  
Department of Computer Science and Engineering  
Advisor: [Prof. James Caverlee](#)
- **Waseda University** 2017 - 2019  
M.E. in Information Engineering  
Advisor: [Prof. Sei-ichiro Kamata](#)  
Thesis: Hybrid Featured based Pyramid Structured CNN for Texture Classification.
- **Southeast University** 2014 - 2018  
B.E. in Information Engineering  
Advisor: [Prof. Chuan Zhang](#)  
Thesis: Research on Stochastic Computing Architecture for Deep Learning.

## Research Interests

- Deep Learning on Graphs
- Large Language Model Reasoning
- Geometric Learning for Drug Discovery

## Professional Experience

- **NEC Labs America**, Princeton, NJ *May 2023 - August 2023*  
Research Intern  
Machine Learning Department  
Worked on conditional molecule generation.  
Mentor: [Martin Renqiang Min](#)
- **Baidu Research**, Beijing, China *June 2020 - September 2020*  
Research Intern  
Big Data Lab  
Worked on the interpretability of deep neural networks.  
Mentor: [Haoyi Xiong](#), [Dejing Dou](#)

## Publications [[Google Scholar](#)]

\* indicates equal contribution.

- Rui Yang, **Haoran Liu**, Edison Marrese-Taylor, Qingcheng Zeng, Yuhe Ke, Wanxin Li, Lechao Cheng, Qingyu Chen, James Caverlee, Yutaka Matsuo, Irene Li  
KG-Rank: Enhancing Large Language Models for Medical QA with Knowledge Graphs and Ranking Techniques  
In submission of ACL 2024.
- Maria Teleki, Xiangjue Dong, **Haoran Liu**, James Caverlee  
The *Who*, *What*, and *How* of Podcasts: A Large-Scale Analysis of the Topics, Discourse Style, and Gender in Spoken Content.  
In submission of ICWSM 2024.
- **Haoran Liu**, Youzhi Luo, James Caverlee, Martin Renqiang Min  
Learning Disentangled Equivariant Representation for Explicitly Controllable 3D Molecule Generation.  
In submission of ICML 2024.
- **Haoran Liu**, Jianling Wang, Kaize Ding, James Caverlee  
Topological and Temporal Data Augmentation for Temporal Graph Networks.  
NeurIPS 2023 Temporal Graph Learning Workshop.
- **Haoran Liu**, Bokun Wang, Jianling Wang, Xiangjue Dong, Tianbao Yang, James Caverlee  
Everything Perturbed All at Once: Enabling Differentiable Graph Attacks.  
International Conference on World Wide Web (**WWW**), 2024. Short Paper Track.
- Limei Wang\*, **Haoran Liu**\*, Yi Liu\*, Jerry Kurtin, and Shuiwang Ji  
Learning Protein Representations via Complete 3D Graph Networks.  
International Conference on Learning Representations (**ICLR**), 2023
- Meng Liu, **Haoran Liu**, and Shuiwang Ji  
Gradient-Guided Importance Sampling for Learning Discrete Energy-Based Models.  
International Conference on Learning Representations (**ICLR**), 2023
- Limei Wang\*, Yi Liu, Yuchao Lin, **Haoran Liu**, and Shuiwang Ji  
ComENet: Towards Complete and Efficient Message Passing for 3D Molecular Graphs.  
Thirty-Sixth Conference on Neural Information Processing Systems (**NeurIPS**), 2022.
- **Haoran Liu**, Haoyi Xiong, Yaqing Wang, Haozhe An, Dejing Dou, Dongrui Wu  
Exploring the common principal subspace of deep features in neural networks.  
Machine Learning (**MLJ**), 2022, Springer.
- Meng Liu\*, Youzhi Luo\*, Limei Wang\*, Yaochen Xie\*, Hao Yuan\*, Shurui Gui\*, Haiyang Yu\*, Zhao Xu, Jingtun Zhang, Yi Liu, Keqiang Yan, **Haoran Liu**, Cong Fu, Bora Oztekin, Xuan Zhang, and Shuiwang Ji  
DIG: A Turnkey Library for Diving into Graph Deep Learning Research.  
Journal of Machine Learning Research (**JMLR**), 2021
- Yuqi Li, Sei-Ichiro Kamata, **Haoran Liu**  
Edge-guided Hierarchically Nested Network for Real-time Semantic Segmentation.  
IEEE International Conference on Signal and Image Processing Applications (ICSIPA) 2019.  
**Best Paper Award.**

- **Haoran Liu, Sei-Ichiro Kamata, Yuqi Li**  
Hybrid Featured based Pyramid Structured CNN for Texture Classification.  
IEEE International Conference on Signal and Image Processing Applications (ICSIPA) 2019.

### Academic Service

- **Conference Reviewer/PC Member:** CVPR (24'), ICLR (23', 24'), NeurIPS (23'), NeurIPS Dataset and Benchmark Track (22', 23'), KDD (23'), SIGIR (23'), LoG (22', 23'), ICDM (20'), etc.
- **Journal Reviewer:** IEEE TNNLS, IEEE Trans Cybern.

### Scholarships, Awards, & Honors

- D. E. Shaw Research Graduate and Postdoctoral Women's Fellowship. 2023
- IPS Special Scholarship for International Student, Waseda University. 2017 - 2018
- Foundation for the Advancement of Industry, Science and Technology (FAIS) Scholarship. 2017 - 2018
- Second Prize in National Undergraduate Electronics Design Contest. 2016