

# Yinan Huang

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## Education

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| <b>Georgia Institute of Technology, USA</b> , Ph.D. in Machine Learning   | Sept 2023 – 2027 (Expected) |
| • Advisor: Pan Li   |                             |
| <b>Duke University, USA</b> , M.S. in Electrical and Computer Engineering | Sept 2020 - May 2023        |
| • GPA: 4.0/4.0  |                             |
| <b>Sun Yat-sen University, China</b> , B.S. in Physics                    | Sept 2016 - May 2020        |
| • GPA: 4.3/5.0, Rank: 1/83  |                             |

## Research Interests

**Generative models:** diffusion model/flow matching

**Trustworthy AI:** differential privacy

**Geometric Deep Learning:** graph neural networks, equivariant neural networks

## Professional Experience

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| • <b>Research Intern</b> , Beijing Institute for General Artificial Intelligence | Sept 2021 – Feb 2022 |
| • <b>Research Intern</b> , Peking University                                     | Feb 2022 – Sept 2022 |
| • <b>Research Assistant</b> , Georgia Institute of Technology                    | Sept 2023 –          |

## Publications

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- Differentially Private Relational Learning with Entity-level Privacy Guarantees  
**Yinan Huang\***, Haoteng Yin\*, Eli Chien, Rongzhe Wei, Pan Li  
*Advances in Neural Information Processing Systems (NeurIPS)*, 2025.
  - GenAI Copyright Evidence with Operational Meaning  
Eli Chien, Amit Saha, **Yinan Huang**, Pan Li  
*ICML Workshop on Reliable and Responsible Foundation Models*, 2025
  - What Are Good Positional Encodings for Directed Graphs?  
**Yinan Huang**, Haoyu Wang, Pan Li  
*International Conference on Learning Representations (ICLR)*, 2025.
  - On the Stability of Expressive Positional Encodings for Graphs  
**Yinan Huang\***, William Lu\*, Joshua Robinson, Yu Yang, Muhan Zhang, Stefanie Jegelka, Pan Li  
*International Conference on Learning Representations (ICLR)*, 2024.
  - Is Distance Matrix Enough for Geometric Deep Learning?  
Zian Li, Xiyuan Wang, **Yinan Huang**, Muhan Zhang  
*Advances in Neural Information Processing Systems (NeurIPS)*, 2023.
  - Boosting the Cycle Counting Power of Graph Neural Networks with  $I^2$ -GNNs  
**Yinan Huang**, Xingang Peng, Jianzhu Ma, Muhan Zhang  
*International Conference on Learning Representations (ICLR)*, 2023.
  - 3DLinker: An E(3) Equivariant Variational Autoencoder for Molecular Linker Design  
**Yinan Huang**, Xingang Peng, Jianzhu Ma, Muhan Zhang  
*International Conference on Machine Learning (ICML)*, 2022 (**Oral**).

## Preprints

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- Powers of Magnetic Graph Matrix: Fourier Spectrum, Walk Compression, and Applications  
*Yinan Huang*, David F Gleich, Pan Li  
<https://arxiv.org/abs/2506.07343>
- What Can We Learn from State Space Models for Machine Learning on Graphs?  
*Yinan Huang\**, Siqu Miao\*, Pan Li  
<https://arxiv.org/abs/2406.05815>
- A Benchmark on Directed Graph Representation Learning in Hardware Designs  
Haoyu Wang, *Yinan Huang*, Nan Wu, Pan Li  
<https://arxiv.org/abs/2410.06460>

## Honors and Awards

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Travel Award for ICLR 2025, Georgia Tech ECE Fellowship 2023, China National Scholarship 2017.

## Professional Service

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- Reviewer for ICML'23-25, ICLR'24-25, NeurIPS'23-26, AAAI'26, KDD'26
- Teaching Assistant: ECE 3077 Introduction to Probability and Statistics, ECE 6250 Advanced Digital Signal Processing