

# Min Chen

◇ Email: mic380@pitt.edu | ◇ <https://mchen644.github.io/>

## EDUCATION

### University of Pittsburgh

Ph.D. in Computer Science | Advisor: Prof. Junyu Liu

Pittsburgh, PA

Sep 2025 – Present

### Georgia Institute of Technology

M.S. in Electrical and Computer Engineering

Atlanta, GA

Sep 2022 – Jun 2025

### Tianjin University

B.E. in Functional Materials

Tianjin, China

Sep 2018 – May 2022

## PUBLICATIONS

2026

1. **Min Chen**, Jinglei Cheng, Pingzhi Li, Haoran Wang, Tianlong Chen, Junyu Liu.  
[Symbolic Analysis of Grover Search Algorithm via Chain-of-Thought Reasoning and Quantum-Native Tokenization.](#)  
npj Quantum Information, 2026.  
AI + Quantum
2. **Min Chen**, Zihan Wang, Canyu Chen, Zeguan Wu, Manling Li, Junyu Liu.  
[Artificial Entanglement in the Fine-Tuning of Large Language Models.](#)  
arXiv preprint, under submission.  
AI + Quantum

2025

1. **Min Chen**, Guansong Pang, Wenjun Wang, Cheng Yan.  
[Information Bottleneck-guided MLPs for Robust Spatial-temporal Forecasting.](#)  
International Conference on Machine Learning (ICML 2025).  
Information Theory + AI
2. David Meltzer, **Min Chen**, Junyu Liu.  
[Catapult Dynamics and Phase Transitions in Quadratic Nets.](#)  
Journal of Statistical Mechanics: Theory and Experiment, 2025.  
Statistical Physics + AI
3. **Min Chen**, Bingzhi Zhang, Quntao Zhuang, Junyu Liu.  
[An Analytic Theory of Quantum Imaginary Time Evolution.](#)  
arXiv preprint, under submission.  
Quantum Learning Theory
4. Haoran Wang, Pingzhi Li, **Min Chen**, Jinglei Cheng, Junyu Liu, Tianlong Chen.  
[GroverGPT: A Large Language Model for Quantum Searching.](#)  
arXiv preprint, under submission.  
AI + Quantum
5. **Min Chen**, Minzhao Liu, Changhun Oh, Liang Jiang, Yuri Alexeev, Junyu Liu.  
[Towards Symmetry-Aware Efficient Simulation of Quantum Systems and Beyond.](#)  
IEEE TPS-ISA 2025.  
Perspective

## AWARDS & GRANTS

- **Tinker Research Grant** 2025  
*Thinking Machines Lab* \$5,000 USD  
Competitive research grant supporting independent research with compute credits and priority technical support.

## EXPERIENCE

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### University of Pittsburgh

Graduate Student Researcher

Supervisor: Prof. Junyu Liu

Pittsburgh, PA

Sep 2025 – Present

- Investigated catapult dynamics and phase transitions in quadratic neural networks, establishing connections between statistical physics and deep learning (JSM 2025, second author).
- Derived an analytic theory for quantum imaginary time evolution, providing theoretical foundations for quantum learning algorithms (arXiv preprint, under submission, first author).
- Pioneered GroverGPT framework combining large language models with quantum algorithms, introducing quantum-native tokenization and chain-of-thought reasoning for quantum search (npj Quantum Information 2025, first author on GroverGPT-2; 1 arXiv preprint, under submission).
- Surveyed symmetry-aware simulation methods for efficient quantum system simulation, published as perspective paper at IEEE TPS-ISA 2025 (first author).
- Investigated LLM finetuning dynamics using tensor network tools from quantum information theory, providing explanations for observed phenomena through random matrix theory (arXiv preprint, under submission, first author).

### University of Macau

Research Assistant

Supervisor: Dr. Huanle Xu

Macau, China

Aug 2024 – Dec 2024

- Designed and benchmarked LLM request scheduling strategies to optimize time per output token (TPOT), time to first token (TTFT), and throughput trade-offs.

## TEACHING

- 
- CS 1503 Mathematical Foundations of Machine Learning

Teaching Assistant

- CMPINF 0401 Intermediate Programming

Teaching Assistant

## SERVICES

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- **Reviewer:** KDD 2024; SLLM@ICLR 2025; *npj Quantum Information*; *Scientific Reports*