Min Chen

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EDUCATION

University of Pittsburgh — Pittsburgh, PA
Ph.D. in Computer Science | Advisor: Prof. Junyu Liu — *Sep 2025 – Present*

Georgia Institute of Technology — Atlanta, GA
M.S. in Electrical and Computer Engineering — *Sep 2022 – Jun 2025*

Tianjin University — Tianjin, China
B.E. in Functional Materials — *Sep 2018 – May 2022*

PUBLICATIONS

2026

1. **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. **Min Chen**, Jinglei Cheng, Pingzhi Li, Haoran Wang, Tianlong Chen, Junyu Liu.
GroverGPT-2: Simulating Grover's Algorithm via Chain-of-Thought Reasoning and Quantum-Native Tokenization.
arXiv preprint, under submission.
`AI + Quantum`
5. 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`
6. **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

University of Pittsburgh Pittsburgh, PA
Graduate Student Researcher *Sep 2025 – Present*
Supervisor: Prof. Junyu Liu

- 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 (2 arXiv preprints, under submission; first author on GroverGPT-2).
- 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 Macau, China
Research Assistant *Aug 2024 – Dec 2024*
Supervisor: Dr. Huanle Xu

- 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

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