Tianle Zhang (张天乐)

Ph.D. Student, College of Computing and Data Science, Nanyang Technological University, Singapore
tianle006@e.ntu.edu.sg | +65 8491 7566 | Homepage | Google Scholar | Male

Research interests: #Multi-modal LLMs · #AI4S · #Efficient Deep Learning · #Evaluation of Generative Models · #Dataset Distillation

Profile

My research focuses on combining large language models (LLMs) with domain foundation models (FMs) — making the integration both efficient and effective — with growing emphasis on scientific domains such as small molecules and proteins. On the modeling side, I proposed a training-free framework that enables LLMs to reason over non-text modalities via in-context representation learning, with the molecular domain as the testbed (NeurIPS 2025, first author; Prof. Alvin Chan as corresponding author), and contributed to subsequent work on strategic multimodal representation alignment (AAAI 2026). On the evaluation side, I re-designed the human-evaluation protocol for text-to-video generation (NeurIPS 2024, first author), and contributed to ConvBench, a hierarchical multi-turn benchmark for large vision-language models (NeurIPS 2024 Spotlight). Earlier work on efficient learning includes expanding-window trajectory matching for lossless graph dataset condensation (ICML 2024, co-first author). Across 8 publications at top-tier ML venues (NeurIPS, ICML, AAAI) and IEEE conferences, I am first or co-first author on 5. I am supported by the NTU Research Scholarship, and serve as a reviewer for ICLR 2026, NeurIPS 2025/2026, and ICML 2025/2026. Further details on my homepage.

Education

Nanyang Technological University, College of Computing and Data Science Singapore | Jan. 2025 – Present
Ph.D. in Computer Science; GPA: 5.0/5.0. Advisor: *Prof. Alvin Chan Guo Wei*. Funded by *NTU Research Scholarship* (full tuition + stipend, Sep. 2024).

University of Electronic Science and Technology of China Chengdu, China | Sep. 2020 – Jun. 2024
B.Eng. in Computer Science and Technology (Joint Degree in Smart Finance & Blockchain Finance); GPA: 88.51/100.
Selected coursework: Machine Learning (97), Data Structures & Algorithms (95), Smart Contract & DApps (95), Mathematical Modeling (96), Data Mining & Big Data (92), Probability & Statistics (92), Database Theory (91), Software Engineering (91).

Academic Experience

Nanyang Technological University, CCDS Singapore
Ph.D. Student. Advisor: Prof. Alvin Chan Guo Wei Jan. 2025 – Present

- Exploring new ways to combine LLMs with domain foundation models (FMs), aiming for integrations that are both more efficient and more effective. Current focus: scientific domains — small molecules and proteins — where structured FM representations complement LLM reasoning.

Nanyang Technological University, CCDS Singapore
Research Assistant. Advisor: Prof. Alvin Chan Guo Wei Oct. 2024 – Jan. 2025

- Investigated whether LLMs can reason over non-text modalities without additional training, by treating modality tokens as in-context representations. The proposed In-Context Representation Learning (ICRL) framework, tested on the molecular domain, is to our knowledge the first training-free framework of its kind. Published at NeurIPS 2025 (first author).

Shanghai Artificial Intelligence Laboratory Shanghai, China
Trainee Researcher. Focus: evaluation of large generative models. Oct. 2023 – Oct. 2024

- Designed the T2VHE protocol, a standardized human-evaluation pipeline for text-to-video models that reduces evaluation cost by ∼50% while preserving annotation quality. Published at NeurIPS 2024 (first author).
- Co-built ConvBench, a hierarchical multi-turn benchmark for LVLMs that disentangles perception, reasoning, and creation. Published at NeurIPS 2024 Spotlight (co-author).

NUS High Performance Computing for AI (HPC-AI) Lab Singapore
Research Intern. Focus: graph dataset condensation. Apr. 2023 – Oct. 2024

- Investigated lossless graph dataset condensation. Proposed expanding-window trajectory matching with a curriculum-based supervision design that substantially closes the gap to full-graph training. Published at ICML 2024 (co-first author).

Publications

Bold = author of this CV; * = equal contribution; † = corresponding author.

- **(AAAI'26)** To Align or Not to Align: Strategic Multimodal Representation Alignment for Optimal Performance.
  Wanlong Fang, **Tianle Zhang**, Alvin Chan†.
  Proceedings of the 40th AAAI Conference on Artificial Intelligence, 2026.
- **(NeurIPS'25)** Can LLMs Reason Over Non-Text Modalities in a Training-Free Manner? A Case Study with In-Context Representation Learning.
  Tianle Zhang*, Wanlong Fang*, Jonathan Woo*, Paridhi Latawa, Deepak A. Subramanian, Alvin Chan†.
  Proceedings of the 39th Conference on Neural Information Processing Systems, 2025.
- **(NeurIPS'24)** Rethinking Human Evaluation Protocol for Text-to-Video Models: Enhancing Reliability, Reproducibility, and Practicality.
  Tianle Zhang, Langtian Ma, Yuchen Yan, Yuchen Zhang, Kai Wang, Yue Yang, Ziyao Guo, Wenqi Shao, Yang You, Yu Qiao, Ping Luo, Kaipeng Zhang†.
  Proceedings of the 38th Conference on Neural Information Processing Systems, 2024.
- **(NeurIPS'24 Spotlight)** ConvBench: A Multi-Turn Conversation Evaluation Benchmark with Hierarchical Capability for Large Vision-Language Models.
  Shuo Liu, Kaining Ying, Hao Zhang, Yue Yang, Yuqi Lin, **Tianle Zhang**, Chuanhao Li, Yu Qiao, Ping Luo, Wenqi Shao†, Kaipeng Zhang†.
  Proceedings of the 38th Conference on Neural Information Processing Systems, 2024.
- **(ICML'24)** Navigating Complexity: Toward Lossless Graph Condensation via Expanding Window Matching.
  Yuchen Zhang*, **Tianle Zhang***, Kai Wang, Ziyao Guo, Yuxuan Liang, Xavier Bresson, Wei Jin, Yang You.
  Proceedings of the 41st International Conference on Machine Learning, 2024.
- **(ICONIP'23)** ADGCN: A Weakly Supervised Framework for Anomaly Detection in Social Networks.
  Zhixiang Shen*, **Tianle Zhang***†, Haolan He*.
  International Conference on Neural Information Processing, 2023 (CCF-C).
- **(IEEE EHB'22)** Phase Detection Methods for Alzheimer's Disease Based on Improved Convolutional Neural Network Fine-tuning.
  Tianle Zhang, Rui Yin, Zhan Qu, Zhuo Chen.
  10th IEEE International Conference on e-Health and Bioengineering, 2022 (IEEE Xplore, SCOPUS, WoS).
- **(IEEE ITME'22)** Fast Classification of Alzheimer's Disease Based on Improved Convolutional Neural Network.
  Zhan Qu, **Tianle Zhang**, Rui Yin, Zhuo Chen, Teoh Teik Toe.
  IEEE International Conference on Information Technology in Medicine and Education, 2022 (IEEE Xplore).

Awards and Scholarships

1. **NTU Research Scholarship (R-RSS)** — *Graduate College, NTU; full tuition + monthly stipend.* Sep. 2024
2. **Excellent First-class Scholarship** — *University of Electronic Science and Technology of China.* Oct. 2023
3. **Xiaomi Scholarship** — *Xiaomi Foundation × UESTC.* Oct. 2023
4. **Tencent First-class Scholarship** — *Tencent Foundation × UESTC.* Oct. 2022
5. **NTU Project Scholarship** — *Nanyang Technological University (undergraduate research visit).* Oct. 2022
6. **Bronze Award, Chengdu 80 Fintech Product R&D Competition** — *Chengdu Fintech Industry Innovation Center.* Oct. 2021
7. **Special Prize, 7th UESTC "Internet Plus" Innovation & Entrepreneurship Competition** — *UESTC.* Aug. 2021
8. **Second Prize (Sichuan), 11th National College E-commerce Competition** — *National Ministry of Education.* Aug. 2021
9. **Blockchain Financial Experiment Class Scholarship** — *UESTC.* Oct. 2020

Academic Service

Reviewer Recognition

- **ICML 2026 Gold Reviewer** — awarded to top reviewers based on area-chair ratings of submitted reviews; includes complimentary conference registration.

Conference Reviewer

- International Conference on Learning Representations (ICLR): 2026

- Conference on Neural Information Processing Systems (NeurIPS): 2025, 2026
- International Conference on Machine Learning (ICML): 2025, 2026
- ICLR 2025 Workshop on AI for Nucleic Acids (AI4NA)

Workshop Committee

- ECCV 2024 Workshop on Dataset Distillation Challenge — Committee Member.

Skills and Languages

Programming: Python (primary), Solidity, C; experienced with DApp / smart-contract development.
ML / DL: PyTorch, Hugging Face, scikit-learn; multi-modal LLMs, diffusion models, GNNs, dataset distillation.
Tools: Git, Linux, CUDA, LaTeX, Weights & Biases.
Languages: Chinese (Native); English (Fluent — academic writing, presentation, NeurIPS poster experience).