Haoren Zheng

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EDUCATION

Nanjing University of Science and Technology, Nanjing, China

- B.S. in Information and Computational Science (Mathematics),
  minor in Artificial Intelligence — Sep 2021 – Jun 2025
  - Major rank: 1/40.
  - GPA: 3.85 / 4.0.
  - Supervisor: Prof. Hongyi Liu.
  - Research: Remote Sensing Image Unmixing

Global College, Shanghai Jiao Tong University, Shanghai, China

- Ph.D. student — Sep 2025 – Present
  - Adviser: Prof. Dezhi Zhou.
  - Current direction: foundation model for integrated simulation–optimization–design in combustion dynamical systems (advised by Prof. Dezhi Zhou and Prof. Tailin Wu).

RESEARCH & VISITING EXPERIENCE

AI Industry Research (AIR), Tsinghua University, Beijing, China

- Visiting student — Jan 2024 – Mar 2024
  - Supervisor: Prof. Yan Wang.
  - Research: AIGC theory and application

School of Engineering, Westlake University, Hangzhou, China

- Visiting student — Jan 2025 – Present
  - Supervisor: Prof. Tailin Wu; Co-supervisor: Prof. Long Wei.
  - Research: AI for Science & Science for AI

PUBLICATIONS & PREPRINTS

[1] Haoren Zheng, Zulong Li, Chenyu Sun, Hanqiu Zhang, Hongyi Liu, Zhihui Wei. "Blind unmixing using dispersion model-based autoencoder to address spectral variability." *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, 2024. (Paper; Code)

[2] Haodong Feng*, Haoren Zheng*, Peiyan Hu, Hongyuan Liu, Chenglei Yu, Long Wei, Ruiqi Feng, Jinlong Duan, Dixia Fan, Tailin Wu. "FluidZero: Mastering Diverse Tasks in Fluid Systems through a Single Generative Model." Submitted to *Nature Machine Intelligence*, 2025. (Paper; Code)

[3] Peiyan Hu*, Haodong Feng*, Hongyuan Liu*, Tongtong Yan, Wenhao Deng, Tianrun Gao, Rong Zheng, Haoren Zheng, Chenglei Yu, Chuanrui Wang, Kaiwen Li, Zhi-Ming Ma, Dezhi Zhou, Xingcai Lu, Dixia Fan, Tailin Wu. "RealPDEBench: A Benchmark for Complex Physical Systems with Real-World Data." Submitted to *International Conference on Learning Representations (ICLR)*, 2026. (Paper; Code; Project)

[4] Tianrun Gao*, Haoren Zheng*, Wenhao Deng*, Haodong Feng, Tao Zhang, Ruiqi Feng, Qianyi Chen, Tailin Wu. "GenCP: Towards Generative Modeling Paradigm of Coupled Physics with Application to Fluid-Structure Interaction." Submitted to *International Conference on Learning Representations (ICLR)*, 2026.

[5] Tian Bu*, Chuanrui Wang*, Hao Ma, Haoren Zheng, Xin Lu, Tailin Wu. "GGBall: Graph Generative Model on Poincaré Ball." Submitted to *International Conference on Learning Representations (ICLR)*, 2026. (Paper; Code)

[6] Haoren Zheng, Shibo Gu, Evatt R. Hawkes, Dezhi Zhou, Xingcai Lu. "Generate reacting flow fields with flow matching neural operators on high-resolution grids." Submitted to the 41st International Symposium on Combustion (ISOC), 2026.

AWARDS & HONORS

- Jinhua "Five-Good Student". — 2020
- Annual Outstanding Athlete, Nanjing University of Science and Technology. — 2022
- Meritorious Winner, Mathematical Contest in Modeling / Interdisciplinary Contest in Modeling (MCM/ICM). — 2024

SKILLS

Python, C++, PyTorch, Git, Linux, LaTeX

SERVICE & LEADERSHIP	▪ Research mentorship: led a hyperspectral image unmixing research project, mentoring 3 junior students.	Sep 2024 – Jun 2025
	▪ Research mentorship: led an AI-for-combustion control research project, mentoring 2 senior undergraduates.	Nov 2025 – Present
INTERESTS	Fitness, Cycling, Go (Weiqi) (Amateur 4-dan), Rubik's Cubes	

[*Last updated on 2026-01-18*]