Shengtai Yao

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Research Interests

My research interests lie broadly in ***Optimization*** and ***Machine Learning Theory***.

Education

Stanford University, California, United States *Sep 2026 – Current*
Ph.D. Operation Research, Management Science and Engineering

Johns Hopkins University, Maryland, United States *Dec 2025*
M.S.E. Applied Mathematics and Statistics

- **Thesis:** *Any-Dimensional Invariant Universality* (Advised by *Prof. Mateo Díaz*)

Tsinghua University, Beijing, China *Jun 2024*
B.E. Mechanical Engineering (Elite Program)

- **Thesis:** *Physics-Informed Neural Networks for Multi-Physics Coupling Computation and Inverse Analysis* (Advised by *Prof. Qiang He*)

Honors & Awards

Outstanding Graduation Thesis (Top 5%), Tsinghua University *Jun 2024*

Scholarship for Technological Innovation, Tsinghua University *Nov 2023*

Scholarship for Academic Performance, Tsinghua University *Dec 2020*

Publications

1. **S. Yao**, E. Levin, M. Díaz. *Any-Dimensional Invariant Universality.* Johns Hopkins University, 2025.
2. **S. Yao**, Y. Wu, R.H. Taylor, E.M. Boctor. *Boost Calibration for Dual-Arm Co-Robotic Ultrasound System.* 2025 IEEE International Ultrasonics Symposium (IUS). *Poster Presented.*
3. **S. Yao**, W. Huang, Y. Hu, Q. He. *Boundary Region Reinforcement Physics-Informed Neural Networks for solving Partial Differential Equations.* Journal of Engineering Applications of Artificial Intelligence (EAAI). *Under 2nd round review.*
4. **S. Yao**, H. Li, X. Hu, K. Hermann, K. Zhang, Y. Li, M. Li, *Identifying Traffic Risk Hotspots Using Spatial-temporal Network Kernel Density Estimation: A Novel Optimal Parameter Selection Method with Dual Dataset Validation.* Transportation Research Board (TRB) 103rd Annual Meeting. *Poster Presented.*