

# Tao CHENG

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## EDUCATION

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**Zhejiang University** 2023.09 — 2027.06  
*B.Eng. in Computer Science and Technology (expected June 2027)* Hangzhou, China

- **Cumulative GPA:** 93.15/100 (4.76/5.00) | **Rank 1/139** in cohort
- **Relevant Coursework:** Data Structures, Mathematical Modeling, OS, AI, NLP, CV, Robotics and Practice
- **Honors & Awards:**
  - National Scholarship
  - First-Class University Scholarship
  - NITORI International Scholarship

## RESEARCH INTERESTS

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Physics-based 3D Modeling, 3D Reconstruction, 3D Generation and World Models.

## PUBLICATIONS

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**PhysSkin: Real-Time and Generalizable Physics-Based Animation via Self-Supervised Neural Skinning** *CVPR 2026 Highlight*  
*2nd Author*

- **Addressed** the challenge of generalizable real-time physics-based animation by learning continuous skinning fields as basis functions via a transformer-based encoder and cross-attention decoder.
- **Introduced** a physics-informed self-supervised learning strategy with skinning-field normalization and conflict-aware gradient correction, achieving outstanding generalization across diverse 3D shapes.

**DiffWind: Physics-Informed Differentiable Modeling of Wind-Driven Object Dynamics** *ICLR 2026*  
*5th Author*

- **Addressed** the challenge of modeling invisible wind fields and complex object deformations by representing wind as grid-based fields and objects as 3DGS particle systems with MPM-based interaction.
- **Developed** a differentiable framework jointly optimizing spatio-temporal wind forces and object motion with LBM physics constraints, achieving superior reconstruction accuracy and enabling forward simulation.

## PROJECT EXPERIENCE

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**SRTP: City-scale Multi-modal 3D Reconstruction & Weather Simulation** 2025.04 — Present  
*Project Leader, 1st Author (Manuscript in Prep.) | National Level Research Grant State Key Lab of CAD&CG, ZJU*

- **Led** the development of a city-scale multi-modal 3D reconstruction framework; preparing a **1st-author manuscript** for submission to a top-tier venue.
- **Contributed** to research on physics-based animation and wind-driven dynamics; co-authored two papers (see above).
- **Secured** national-level funding for the project's technical novelty and scalability.

**“Shenzhen Cup” National Collegiate Mathematical Modeling Challenge** 2024.04 — 2024.08  
*Team Leader | Second Prize (3rd Place Nationally)* Shenzhen, China

- **Developed** an optimization algorithm for sonic boom localization of rocket debris, enhancing positioning accuracy.
- **Led** a team of three to deliver high-quality technical reports, securing a 10,000 CNY prize for top-tier performance.

## CAMPUS EXPERIENCE

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**HPC101: High-Performance Computing Workshop** 2024.07 — 2024.08  
*Project-based Training* Zhejiang University

- **Mastered** cluster configuration, parallel computing, and CUDA programming.
- **Optimized** CPUBench on Kunpeng CPUs (PAC 2024) via compiler tuning and C/Fortran profiling.

**Data Factor Markets Workshop** 2025.06 — 2025.07  
*Selected Coursework & Implementation* Zhejiang University

- **Mastered** core concepts including Game Theory, MAB algorithms, and auction mechanism design for data assets.
- **Implemented** a database versioned pricing algorithm from the **QIRANA** (SIGMOD '17) paper, achieving full marks for the project.