

Haoyu Zhen

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EDUCATION

- University of Massachusetts Amherst** Amherst, US
• *2nd Ph.D. Student* Sept 2024 - Current
 - Overall GPA: 4.0/4.0
 - Supervisor: Prof. Chuang Gan
 - Research Statement: My research aims to build 3D and 4D embodied world models that enable physical AI to perceive, reason, and act in dynamic environments. By unifying world modeling with embodied reasoning, I seek to develop foundation models that bring robots closer to human-like intelligence in the physical world.
 - Research Impact: GitHub: 2,000+ stars | Google Scholar Citations: 690+
- Shanghai Jiao Tong University** Shanghai, China
• *Bachelor of Engineering* Sept 2020 - June 2024
 - Overall GPA: 92.80/100, 4.03/4.30 (Rank 4/88).
 - 4th semester GPA: 95.24/100, 4.20/4.30 (Rank 1/89).
 - Advisor: Cewu Lu and Junchi Yan
- Massachusetts Institute of Technology** Cambridge, US
• *Visiting Student* July 2023 - Dec 2023
 - Supervisor: Prof. Josh B. Tenenbaum

PUBLICATIONS

- Tesseract: Learning 4D Embodied World Models** ICCV 2025
• Haoyu Zhen, Qiao Sun, Hongxin Zhang, Junyan Li, Siyuan Zhou, Yilun Du, Chuang Gan[†] 320+ stars
- 3D-VLA: A 3D Vision-Language-Action Generative World Model** ICML 2024
• Haoyu Zhen, Xiaowen Qiu, Peihao Chen, Jincheng Yang, Xin Yan, Yilun Du, Yining Hong, Chuang Gan[†] 560+ stars
- 3D-LLM: Injecting 3D World into Large Language Model** NeurIPS 2023 Spotlight
• Yining Hong, Haoyu Zhen, Peihao Chen, Shuhong Zheng, Yilun Du, Zhenfang Chen, Chuang Gan[†] 1100+ stars
- RapVerse: Coherent Vocals and Whole-Body Motions Generations from Text** ICCV 2025
• Jiaben Chen, Xin Yan, Yihang Chen, Siyuan Cen, Qinwei Ma, Haoyu Zhen, Kaizhi Qian, Lie Lu, Chuang Gan[†]
- Color-NeuS: Reconstructing Neural Implicit Surfaces with Color** 3DV 2024
• Licheng Zhong, Lixin Yang, Kailin Li, Haoyu Zhen, Mei Han, Cewu Lu[†]
- Relative Entropic Optimal Transport: a (Prior-aware) Matching Perspective to (Unbalanced) Classification** NeurIPS 2023
• Liangliang Shi, Haoyu Zhen, Gu Zhang, Junchi Yan[†]
- CHORD: Category-level in-Hand Object Reconstruction via Shape Deformation** ICCV 2023
• Kailin Li^{*}, Lixin Yang^{*}, Haoyu Zhen, Zenan Lin, Xinyu Zhan, Licheng Zhong, Jian Xu, Kejian Wu, Cewu Lu[†]
- Understanding and Generalizing Contrastive Learning from the Inverse Optimal Transport Perspective** ICML 2023
• Liangliang Shi, Gu Zhang, Haoyu Zhen, Jintao Fan, Junchi Yan[†]

EXPERIENCE

- NVIDIA Corporation** Santa Clara, US
• *Research intern, Host: Subhashree Radhakrishnan* May 2025 - Aug 2025
Collaborator: Xiaolong Li, Tsung-Yi Lin, Sifei Liu, Zhiding Yu, and Kaichun Mo
3D Vision Language Models, Spatial Reasoning Models
- Meshy AI, Taichi Graphics** Beijing, China
• *Research intern, Host: Tiantian Liu and Yuanming Hu* Feb 2024 - Aug 2024
3D Generation and Diffusion Model

- **Computational Cognitive Science Lab, MIT** Cambridge, US
Mar 2023 - Dec 2023
Visiting scholar, supervised by Josh Tenenbaum
Collaborator: Chuang Gan, Yining Hong, and Zhenfang Chen
 Diffusion Model, Large Language Model, World Model, and Embodied AI
- **Machine Vision and Intelligence Group** Shanghai, China
Dec 2021 - July 2024
Undergraduate researcher, supervised by Cewu Lu and Lixin Yang
 3D Reconstruction and Hand-Object Interaction.
- **SJTU-ReThinklab** Shanghai, China
Sept 2022 - May 2023
Undergraduate researcher, supervised by Junchi Yan.
 ≡ Self-supervised Learning (Contrastive Learning) and Optimal Transport

PROJECTS

- **PyBlend: A Python Library for Blender** Aug 2023
Shanghai Jiao Tong University  [GitHub](#).
- **Shanghai Jiao Tong University AI Pilot Class Website** Jan 2022 - Apr 2022
Shanghai Jiao Tong University  [Website](#) or  [GitHub](#)

HONORS AND AWARDS

- 2024. Outstanding Graduate of Shanghai Jiao Tong University.
- 2023. Rong Chang Scholarship (10 winners, 30000¥)
- 2023/2022/2021. Academic Excellence Scholarship of SJTU (top 10%)
- 2021. Huawei Smart Base Scholarship
- 2019. The first prize of the 36th CPHO semi-finals, Beijing Division (Rank: 17, top 1%)

PRESENTATIONS AND INVITED TALKS

- 2025/09. Learning 4D Embodied World Models @ Genesis AI
- 2025/07. Building 3D & 4D Foundation Models @ Lumina Embodied AI Community
- 2025/07. TesserAct: Learning 4D Embodied World Models @ RoboPapers
- 2024/04. Building Embodied 3D Foundation Models @ OpenDriveLab, Shanghai AI Lab

SKILLS SUMMARY

- **Proficient:** Python (PyTorch, NumPy, pandas, scikit-learn, etc.), C/C++, Linux, Shell (Bash/Zsh), L^AT_EX, Git, Blender
- **Familiar:** MATLAB, HTML/CSS, etc.