

Chang Yu

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changyu1@ucla.edu • +1 (424) 293-9594 • changyu.io • github.com/g1n0st

Education

- University of California, Los Angeles LOS ANGELES, USA
Ph.D. in Computer Science 2023 – Present
Advisor: Prof. Chenfanfu Jiang and Prof. Demetri Terzopoulos.
- University of Electronic Science and Technology of China CHENGDU, CHINA
(Honor) **B.Eng. in Software Engineering**, Elite Program 2019 – 2023
GPA: 3.99/4.0 **Average Score:** 92.24 **Rank:** 1/57
Honors and Awards: UESTC Outstanding Undergraduate; Honor Graduate; Outstanding Undergraduate Scholarship (2019-2023)
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Publications

- VR-GS: A Physical Dynamics-Aware Interactive Gaussian Splatting System in Virtual Reality**
Ying Jiang*, Chang Yu*, Tianyi Xie*, Xuan Li* (* joint first authors), Yutao Feng, Huamin Wang, Minchen Li, Henry Lau, Feng Gao, Yin Yang, Chenfanfu Jiang. *ArXiv*, 2024.
- Gaussian Splashing: Dynamic Fluid Synthesis with Gaussian Splatting** Yutao Feng*, Xiang Feng* (* joint first authors), Yintong Shang, Ying Jiang, Chang Yu, Zeshun Zong, Tianjia Shao, Hongzhi Wu, Kun Zhou, Chenfanfu Jiang, Yin Yang. *ArXiv*, 2024.
- MeshTaichi: A Compiler for Efficient Mesh-based Operations** Chang Yu*, Yi Xu* (* joint first authors), Ye Kuang, Yuanming Hu, Tiantian Liu. *ACM Transactions on Graphics [Proceedings of SIGGRAPH Asia]*, 2022.
- Real-time Physics Engine Based on MPM & PBD** Yilong Wu*, Chang Yu* (* joint first authors). *International Conference on Virtual Reality and Visualization (ICVRV)*, 2020.
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Experience

- Artificial Intelligence & Visual Computing Lab at UCLA LOS ANGELES, USA
Graduate Student Researcher, Advisor: Chenfanfu Jiang Jul '23 – Present
Research Topic: Computer graphics, physically-based simulation and high-performance computing on modern graphics architecture.
- Taichi Graphics (now Meshy) BEIJING, CHINA
Research & Development Intern, Advisor: Tiantian Liu Mar '21 – Jul '23
Research, development and deployment of MeshTaichi extension. A research project. Developed and deployed a novel GPU mesh compiler based on Taichi that provides an intuitive programming model for efficient mesh-based operations. Devised the programming interface and backend code generation. Implemented XPBD, Projective Dynamics, and Lagrangian-force MPM for experiments. Submitted a patent. Work published in SIGGRAPH Asia 2022.
Development of Taichi's Vulkan GPU backend. Developed and deployed an IR builder to convert CHI IR (Taichi Lang's Intermediate Representation) into SPIR-V (Standard Portable Intermediate Representation), which could be compiled and executed by Vulkan SDK and OpenCL. Served as a Taichi deployment solution for non-CUDA GPU environment and Ahead-of-Time compilation. Technical talks presented on TaichiCon01/02.
Teaching. Teaching Assistant of Taichi Graphics Course S1 (in Chinese), Fall 2021.
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Skills

- Technical expertise:** C/C++ (OpenGL, Vulkan), CUDA, Python (Taichi, PyTorch, Tensorflow), Git, LaTeX, SSH, CMake, Houdini, Unity, UE5.
- Natural languages:** English (*fluent*), Mandarin Chinese (*native*).
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Selected Projects

- Implicit MPM:** Implemented an implicit Material Point Method solver with the fixed-corotated elastic model in Taichi Lang. Used the Newton-Raphson method and matrix-free preconditioned conjugate gradient method to solve non-linear equations. [[Link](#)]
- Sand & Water MPM:** Implemented an explicit Material Point Method solver for simulating porous sand and water two-way coupling using APIC and MLS-MPM transfer schemes. GAMES 201 final project & selected course project. [[Link](#)]