# Yintong Shang

shayito_@outlook.com | https://shayito.github.io/ | 1-801-645-2771 | Salt Lake City, Utah, 84107

## Objective

I am a PhD student in computer graphics, advised by Prof. Yin Yang at the University of Utah since Fall 2022. My research focuses on the intersection of computer vision and graphics, specifically on 3D reconstruction and physics-based content generation. I aspire to pursue a career in the animation and gaming industry.

background what work soft skill result-oriented

## Education

University of Utah | Salt Lake City, Utah *2022.8-Present*
*PhD of Computing, Graphics and Visualization Track,* GPA: *3.9/4.0, Advisor: Prof. Yin Yang*

University of Science and Technology of China (USTC) | Hefei, Anhui *2018.9-2022.6*
*Bachelor of Engineering in Electronic Science and Technology,* GPA: 3.61/4.3

## Projects

**Knowledge-driven Neural Network for Content Generation** project page 2024.3-2024.6
- Proposed an end-to-end generative model for producing realistic 4D dynamic scenes.
- Implement a neural network with a physics-based solver backbone using PyTorch.
- Realized the generation of accurate and coherent dynamics with minimal data requirements.

**Human Face Reconstruction** 2023.10-2024.5
- Developed an optimization scheme to reconstruct geometry of human face from monocular videos.
- Applied physics-based animation to simulate secondary facial motions.
- Trained a 3D Gaussian Splatting model to reconstruct realistic human face textures.

**Physics-based NeRF Scene Deformation** project page 2023.5-2023.11
- Realized a physics-based, meshless elastic solver to manipulate the neural radiance fields (NeRFs).
- Implemented a quadratic ray warping algorithm with GPU acceleration using CUDA.
- Achieved interactive frame rates for the simulation and rendering of deformed NeRFs.

## Skills

◇ Programming: C++, Python (PyTorch, Tensorflow), CUDA, Warp Language, C#, MATLAB.
◇ Computer Graphics (CG): physics-based simulation (PBS), Newton's method, Projective Dynamics (PD), numerical optimization, collision handling, soft/rigid body simulation, cloth simulation
◇ Computer Vision (CV): 3D reconstruction, differentiable rendering, neural implicit representations (NeRF, Gaussian Splatting), parametric human body and face model, generative AI.
◇ Machine Learning (ML): neural networks (NN), deep learning (DL).

## Publications

* for equal contribution.

**ElastoGen: 4D Generative Elastodynamics** arXiv 2024.5
Yutao Feng*, Yintong Shang*, Xiang Feng*, Lei Lan, Shandian Zhe, Tianjia Shao, Hongzhi Wu, Kun Zhou, Hao Su, Chenfanfu Jiang, Yin Yang

**Gaussian Splashing: Unified Particles for Versatile Motion Synthesis and Rendering** arXiv 2024.1
Yutao Feng*, Xiang Feng*, Yintong Shang, Ying Jiang, Chang Yu, Zeshun Zong, Tianjia Shao, Hongzhi Wu, Kun Zhou, Chenfanfu Jiang, Yin Yang

**PIE-NeRF: Physics-based Interactive Elastodynamics with NeRF (CVPR 2024)** paper 2023.11
Yutao Feng*, Yintong Shang*, Xuan Li, Tianjia Shao, Chenfanfu Jiang, Yin Yang