

# Zhan ZHANG

Email: [zzzzhan@ucdavis.edu](mailto:zzzzhan@ucdavis.edu)

Website: <https://zhanzhangzz.com/>

Address: 2306 Academic Surge, University of California, Davis

## Education

University of California, Davis

Sep 2021-

PhD, Computer Science

University of Science and Technology of China

Sep 2017- Jul 2021

B.S with Honors, Applied Mathematics; B.S, Computer Science

## Publications

- **Position-Based Nonlinear Gauss-Seidel for Quasistatic Hyperelasticity** 2024  
Yizhou Chen, Yushan Han, Jingyu Chen, **Zhan Zhang**, Alex Mcadams, Joseph Teran  
*ACM Transactions on Graphics (SIGGRAPH) 2024*
- **Computational Design of Flexible Planar Microstructures** 2023  
**Zhan Zhang**, Christopher Brandt, Jean Jouve, Yue Wang, Tian Chen, Mark Pauly, Julian Panetta  
*ACM Transactions on Graphics (SIGGRAPH Asia) 2023*
- **Modeling and Fabrication with Specified Discrete Equivalence Classes** 2021  
Zhong-Yuan Liu, **Zhan Zhang**, Di Zhang, Chunyang Ye, Ligang Liu, Xiao-Ming Fu  
*ACM Transactions on Graphics (SIGGRAPH) 2021*
- **Gaze-Contingent Retinal Speckle Suppression for Perceptually-Matched Foveated Holographic Displays** 2021  
Praneeth Chakravarthula, **Zhan Zhang**, Okan Tursun, Piotr Didyk, Qi Sun, Henry Fuchs  
*IEEE Transactions on Visualization and Computer Graphics (Proceedings of ISMAR) 2021*

## Research Experiences

University of California, Davis

Sep 2021-

**PhD Candidate**

Advisor: Prof. Julian Panetta and Prof. Joseph Teran

- Developing a machine learning-based simulation framework to efficiently generate preconditions for nonlinear solvers
- Designing computational methods for elastic metamaterials, focusing on large deformation scenarios
- Created the first comprehensive solution for microstructure design under large , ensuring no collisions occur
- Developed a multigrid solver for cloth simulation, utilizing a position-based nonlinear Gauss-Seidel method

Tandon School of Engineering, New York University

Jul 2020- Oct 2020

**Summer Intern**

Advisor: Prof. Qi Sun

- Developed a method to reduce perceived speckle noise in holographic projections by accounting for the human visual system's foveal and peripheral vision characteristics in a perceptually-aware framework
- Implemented a light propagation framework using PyTorch for efficient computation and scalability

Graphics & Geometric Computing Laboratory, University of Science and Technology of China

Sep 2019- May 2020

**Undergraduate Research Fellow**

Advisor: Prof. Xiaoming Fu and Prof. Ligang Liu

- Developed a geometric algorithm for optimizing surface mesh equivalence fitting based on the infinite triangle distance norm
- Implemented a remeshing technique using locally equidistant embedded anisotropic surface equivalence meshes for improved geometric fidelity
- Implemented a 3D point cloud classification network using convolutional neural networks (CNNs) to enhance accuracy in spatial data interpretation

## Work Experiences

Epic Games

Jul 2024-

**Research Intern**

- Working on machine learning-based animation retargeting, integrating a collision-aware rigid body solver to enhance efficiency and realism

- Contributed to the enhancement and maintenance of core systems in Unreal Engine, focusing on stability and performance improvements
- Developed a position-based nonlinear Gauss-Seidel method that improves computational efficiency and robustness compared to Extended Position-Based Dynamics (XPBD) techniques

## Professional Service

---

### Reviews

- SIGGRAPH Asia

## Teaching Experiences

---

University of California, Davis Sep 2021-

### Teaching Assistant

Advisor: Prof. Julian Panetta and Prof. Joseph Teran

- Graded, held office hours, discussion sections, and occasionally lecture  
ECS 32A, ECS 36C, ECS 130

## Awards & Scholarship

---

GGCS Spring Research Fellowship 2023

International Student Research Award 2021

"Outstanding Student" Scholarship in USTC 2017, 2019

## Leadership & Activities

---

Student Union of the School of Gifted Young, USTC | Officer Sep 2017- Sep 2018

Student Union of USTC | Officer Sep 2017- Sep 2018

## Technical Skills

---

- Programming: C/C++, Python
- Tools: Git, Docker, Google Cloud Platform, VS Code, Visual Studio, LaTeX, MATLAB, Houdini, Blender, Unreal Engine
- Libraries: Eigen, OpenCV, PyTorch, Tensorflow, Scikit-Learn