Zhen Chen

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Research interests

My current research focuses on improving the efficiency of physical simulations by investigating the physical characteristics and geometric properties of the elastic models, as well as developing robust and efficient simulation techniques. I am also deeply interested in real-time mesh processing for gaming applications, including remeshing, mesh repair, and simplification. A key area of interest is the integration of mesh processing, physical simulation, and deep neural networks to enhance simulation quality and performance.

Working

Adobe — Seattle, Washington
Research Scientist/Engineer — 2024 – present

Education

The University of Texas at Austin — Austin, Texas
Ph.D. in Computer Science — 2018 – 2024
Supervisor: Prof. Etienne Vouga

University of Science and Technology of China — Anhui, China
Bachelor in Information and Computing Science[1] — 2014 – 2018
Mentors: Prof. Ligang Liu

Publications

[1] **Zhen Chen**, Daniele Panozzo, Jeremie Dumas. **Half-Space Power Diagrams and Discrete Surface Offsets**. *IEEE Transaction on Visualization and Computer Graphics, 2019.*

[2] **Zhen Chen**, Hsiao-yu Chen, Danny M. Kaufman, Mélina Skouras, Etienne Vouga. **Fine Wrinkling on Coarsely-Meshed Thin Shells**. *ACM Transcations on Graphics, 2021.*

[3] Yan Zheng, Lemeng Wu, Xingchao Liu, **Zhen Chen**, Qiang Liu, Qixing Huang. **Neural Volumetric Mesh Generator**. *NeurIPS 2022 Workshop SBM Poster, 2022.*

[4] **Zhen Chen**, Danny M. Kaufman, Mélina Skouras, Etienne Vouga. **Complex Wrinkle Field Evolution**. *ACM Transcations on Graphics, 2023 (SIGGRAPH 2023).*

[5] **Zhen Chen**, Zherong Pan, Kui Wu, Etienne Vouga, Xifeng Gao. **Robust Low-Poly Meshing for General 3D Models**. *ACM Transcations on Graphics, 2023 (SIGGRAPH 2023).*

[1] In USTC, Department of Information and Computing Science belongs to Mathematics School

[6] Josh Vekhter, **Zhen Chen**, Etienne Vouga. **Mint: Discretely Integrable Moments for Symmetric Frame Fields**. *Symposium on Geometry Processing, 2025*

Industrial Experience

Research Scientist/Engineer, Adobe Seattle, US
Manager: Danny M. Kaufman May 2024 - Present
Job description: Conduct research focused on developing robust and efficient algorithms in computer graphics, with emphasis on rigid and soft body dynamics, cloth simulation, real-time 2D shape simulation, time-dependent scene generation, and integrable frame field design.
Achievements:
- Main contributor to the dynamic animation features for Adobe Express.
- Main developer of the internal simulator engine

Research & Development Intern, Tencent America Bellevue, US
Mentor: Xifeng Gao Summer 2023
Project description: Develop a robust and efficient algorithm for approximating the convex decomposition of diverse 3D meshes. The objective is to elevate collision detection performance in real-time gaming scenarios.

Research & Development Intern, Tencent America Bellevue, US
Mentor: Xifeng Gao Summer 2022
Project description: Propose a remeshing algorithm designed to accurately capture sharp features, ensuring both the absence of intersections and water-tight integrity. Implement this methodology on real-world mesh data to showcase its practical applicability.

Research Intern, Adobe Remote in Austin, US
Mentor: Danny M. Kaufman Summer 2021
Project description: Design a time integrator which achieves a trade-off between amplitude distortion (dissipation) and period distortion (dispersion). This is specifically designed for the incremental potential contact (IPC) model.

Academic Experience

Graduate Research Assistant Austin, US
Supervisor: Etienne Vouga Spring 2019 - Spring 2021, Spring 2022 - Fall 2023[2]
Project description: Conduct research on efficiency simulation and geometry processing, including proposing novel thin shell models and algorithms to enhance fine-wrinkle simulation and animation, investigating the generation of 3D volumetric models suitable for simulation, and developing robust and efficient remeshing algorithms capable of handling arbitrary inputs.

Student Intern, Geometric Computing Lab NYU
Host: Daniele Panozzo Summer 2017
Project description: Investigate an algorithm for the robust and efficient computation of offset surfaces for 3D meshes. This approach employs half-space power diagrams to achieve accurate results.

Talks

Complex Wrinkle Field Evolution
SIGGRAPH 2023

[2]Except for the summers, where I conducted full-time internships

	Robust Low-Poly Meshing for General 3D Models	
	SIGGRAPH	2023
	Fine Wrinkling on Coarsely-Meshed Thin Shells	
	SIGGRAPH	2022
	Half-Space Power Diagrams and Discrete Surface Offsets (with Jeremie Dumas)	
	Symposium on Geometry Processing (SGP)	2020

Reviews	ICLR	2025
	ICML	2025
	Eurographics	2024
	Computer Graphics Forum	2022
	SIGGRAPH Asia	2024
	SIGGRAPH	2023, 2024, 2025
	IEEE TVCG	2023
	NeurIPS	2024
	SCA	2024

Teaching	**Teaching assistant, Department of Computer Science**	UT Austin
Experience	CS 303E: Elements of Computers and Programming	Fall 2018, Fall 2021
	Teaching assistant, Department of Mathematics	USTC
	Complex Analysis Fall	Fall 2017
	Mathematical Analysis	Spring 2017

Honors and	Baosteel ScholarShip(Top 2%)	2017
Awards	National Scholarship (Top 1% nationwide)	2016
	Outstanding Freshman Scholarship (Top 1%)	2014

Language	**Programming**: C/C++, Python, Matlab
and Skills	**Software**: Houdini, Adobe Premiere
	Language: Chinese(native), English(fluent)