Chenfanfu Jiang

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1 Bio

Chenfanfu Jiang is a Professor of Mathematics and the director of the Artificial Intelligence and Visual Computing (AIVC) Lab at UCLA. He has developed well-known physics-based simulation methods such as APIC, MLS-MPM, and IPC. His research has been supported by NSF, DOE, Toyota, Amazon, Style3D, SideFX, Sony, Adobe, Snap, and NVIDIA. He has received Ph.D. dissertation award from UCLA, CAREER award from NSF, faculty awards from Amazon, Style3D, and Sony, as well as best paper awards/honorable mentions at SIGGRAPH, SCA, MIG, ICRA, and IROS. He received his Ph.D. in CS from UCLA in 2015, co-advised by Demetri Terzopoulos and Joseph Teran. He was an Assistant Professor of CIS at UPenn from 2017 to 2021.

2 Education

- Ph.D. Computer Science, University of California, Los Angeles, 2012-2015
  "The Material Point Method for the Physics-based Simulation of Solids and Fluids"
  Advisors: Demetri Terzopoulos and Joseph Teran
  Thesis committee: Stanley Osher and Song-Chun Zhu
  UCLA HSSEAS Edward K. Rice Outstanding Doctoral Student Award
- M.S. Computer Science, University of California, Los Angeles 2010-2012
  "Simulation of Elastic Solids with Efficient Self-Collision Handling"
  Advisors: Demetri Terzopoulos and Joseph Teran
- B.S. Physics, Special Class for the Gifted Young, University of Science and Technology of China 2006-2010
  "Relativistic Correction of $(v/c)^2$ to the Collective Thomson Scattering for High-Temperature High-Density Plasma"

3 Academic Positions

- Professor at UCLA Mathematics 07/2025- Present
  Director of UCLA Artificial Intelligence and Visual Computing (AIVC) Laboratory
- Associate Professor at UCLA Mathematics 07/2022- 06/2025
  Director of UCLA Artificial Intelligence and Visual Computing (AIVC) Laboratory
- Assistant Professor at UCLA Mathematics 07/2021-06/2022
- Assistant Professor at UPenn Computer and Information Science 07/2017-06/2021
  Affiliated to the SIG Center for Computer Graphics
  Affiliated to the General Robotics, Automation, Sensing and Perception (GRASP) Lab
  Affiliated to the Penn Institute for Computational Science (PICS) as Workshop Chair
  Affiliated to Applied Mathematics and Computational Science (AMCS)
- Postdoctoral Scholar at UCLA Mathematics and Computer Science 7/2015-6/2017

4 Awards and Honors

- Sony Focused Research Award 2025
- Best Paper Honorable Mention, SIGGRAPH 2025 2025
- Finalist for IROS 2024 RoboCup Best Paper Award 2024
- Style3D Faculty Research Award 2024
- Amazon Science Hub Award 2023
- Sony Faculty Innovation Award 2023
- Best Paper Award in Mechanisms and Design, IEEE ICRA Conference 2021
- NSF CAREER Award 2020
- Third place winner in the Computer Graphics Forum Cover Image Contest 2020
- Best Paper Award, ACM Symposium on Computer Animation (SCA) 2019
- NSF CISE CRII Award 2018
- Best Paper Award, Motion In Games (MIG) 2017
- Sole Nomination from UCLA CS for Chancellor's Award for Postdoctoral Research 2017
- Sole Nomination from UCLA for CGS/ProQuest Distinguished Dissertation Award 2016
- Edward K. Rice UCLA Engineering Outstanding Doctoral Student Award 2015
- Best Paper Award, ACM Symposium on Computer Animation (SCA) 2013
- Honor Graduate Certificate, University of Science and Technology of China 2010
- Distinguished Undergraduate Student Researcher, Chinese Academy of Science 2009
- Excellent Student Scholarship, University of Science and Technology of China 2006-2009

5 Patents

- Computerized rendering of objects having anisotropic elastoplasticity for codimensional frictional contact, US20200082589A1, Filed 2018-05-17, Published 2020-03-12
- Computerized rendering of animated objects using polynomial particle-in-cell method, WO2019074856A1, Filed 2018-10-08, Published 2019-04-18

6 Funding

- Toyota Research Institute (TRI) University Research Grant 2026-2029
  Pushing the Limits of GPU-based Physics Simulations for Robotics
- NVIDIA Academic Grant Program Award 2025
  Multiphysics Simulation for Advanced Robotic Virtual Environments
- Sony Focused Research Award 2025-2026
  Physics-aware 4D Generative and Interactive Clothed Human Avatar
- Sony Faculty Innovation Award (Extended New Project) 2025-2026
  PhysGaussian 2.0
- Unrestricted Gift from Snap 2024
- Toyota Research Institute (TRI) University Research Grant 2024-2026
  Robust, Accurate, and Interactive Solutions for Contact-Rich Multi-Physics Robotic Simulations
- Unrestricted Gift from Style3D 2024
- Sony Faculty Innovation Award 2023-2024
  Topologically Flexible Material Point Methods for Scalable Multiphysics
- Amazon Science Hub for Humanity and Artificial Intelligence Award 2023-2024
  Differentiable Physics Augmented Neural Radiance Fields for Real-to-Sim & Manufacture-Ready 3D Garment Reconstruction
- Unrestricted Gift from Tezoi Technology 2023
- UC Multicampus Research Programs and Initiatives Award 2023-2025

High-Performance Numerical Solvers for Scalable and Flexible Simulation on Modern Hardware
Co-PIs: Craig Schroeder (UCR), Joseph Teran (UCD)

- NSF CAREER Award 2020-2025
  Simulation of Geometrically Flexible Materials with Applications to Computer Graphics and Computational Science
- NSF ASCENT 2020-2024
  Programmable Photonic Computation Accelerators (PPCA)
  PI: Liang Feng (UPenn), Co-PI(s): Shays Fainman (UCSD)
- Team Grants for Interdisciplinary Activities (TGIA), University of Pennsylvania 2020
  Numerical Modeling of Soft Interactions for Robots
  Co-PI: Cynthia Sung (UPenn)
- Contract on Exascale Computing Project from US Department of Energy (DOE) 2019-2022
  High-performance computing model of powder-scale melting and solidification simulations
- Team Grants for Interdisciplinary Activities (TGIA), University of Pennsylvania 2019
  A software model of hiatal hernias
  Co-PI: Kristoffel Dumon (UPenn)
- NSF CCF-1813624 2018-2022
  Large-scale adaptive Material Point Methods for complex materials in multiphysics simulation
  Co-PI: Eftychios Sifakis (UW-Madison)
- Unrestricted Gift from Adobe 2018-2023
- NSF CISE CRII Award (IIS-1755544) 2018-2020
  Robust algorithms modeling frictional contact with industrial, medical and computer graphics applications
- Penn Provost's Undergraduate Research Mentoring (PURM) Award 2018
- Unrestricted Gift from Awowd 2017
- Equipment and software donations from NVidia and SideFX 2017-2019

7 Invited Talks

- UCSD CSE Colloquium Lecture 04/28/2025
  Simulating Physics for 3D Visual Computing and Embodied AI
- Invited talk at Demetri Terzopoulos's Computer Animation Lectures 02/05/2024
  Physics-Based Animation of Solids and Fluids
- UCLA CS Faculty Research Talk 01/23/2024
  Scientific Visual Computing in Computer Graphics
- University of Maryland CS Seminar 10/12/2023
  Differentiable Material Point Method's Recent Connections to Real World
- International Symposium on Computer Engineering and Intelligent Communications 08/18/2023
  Mathematical Principles behind Snow
- USTC Mathematics Summer School 07/10/2023
  Variational Contact
- UCLA Mathematics Colloquium 11/10/2022
  Energetically Consistent Inelasticity
- UCLA Bruin Family Weekend Faculty Presentation 10/28/2022
  Scientific Visual Computing
- UC Riverside Computer Science and Engineering Department Colloquium 10/07/2022
  Incremental Potential Elastodynamics with Contact
- Invited talk at Demetri Terzopoulos's CS 174C 05/16/2022
  Simulating Granular Media as Continuum Solids
- Colorado State University Applied Math/Inverse Problems Seminar 03/10/2022
  Incremental Potential Elastodynamics with Contact: Robust Optimization-based Solvers and Smooth Refor-

mulations

- The first workshop on SEAI: Simulation Technology for Embodied AI, ICCV 10/16/2021
  Frictional Contact with Guarantees and Smoothness
- UCSD Pixel Cafe 10/08/2021
  Incremental Potential Elastodynamics with Contact: Robust Optimization-based Solvers and Smooth Reformulations
- Siemens Next Generation Simulation Talks 09/13/2021
  Robust Optimization-based Solvers and Smooth Reformulations
- MIT Summer Geometry Institute (SGI) 08/19/2021
  Developments in Smooth Optimization Contact
- School of Informatics at Xiamen University, 06/27/2021
  Incremental Potential Elastodynamics with Contact
- Invited talk at Marcus Roper's Math 272B 05/26/2021
  Simulating Granular Media as Continuum Solids
- Toronto Geometry Colloquium 04/14/2021
  Continuum Rupture Discrete Particles
- UCLA Applied Math Seminar 12/18/2020
  Incremental Potential Elastodynamics with Contact: Robust Optimization-based Solvers and Smooth Reformulations
- New Jersey Institute of Technology Computer Graphics 11/08/2020
  Smooth Reformulations for Physics-Based Simulation: with Case Studies on Frictional Contact and Fracture
- Advanced Innovation Center for Future Visual Entertainment in Beijing Film Academy 10/29/2020
  Smooth Reformulations for Physics-Based Simulation: with Case Studies on Frictional Contact and Fracture
- MIT Graphics Seminar 10/07/2020
  Smooth Reformulations for Physics-Based Simulation: with Case Studies on Frictional Contact and Fracture
- RealTime Conference (RTC) 06/08/2020
  Photorealistic and efficient simulation of natural phenomena
- USC Information Sciences Institute (ISI) AI Seminar 02/14/2020
  Recreating Nature with High-fidelity Physics-based Visual Computing
- Workshop Graphyz on physics and graphics, Inria 10/24/2019
  MPM simulation for viscoplastic flows: pluridisciplinary modeling of snow avalanches
- ACM SIGGRAPH / Eurographics Symposium on Computer Animation 07/27/2019
  The power of constitutive modeling in physics-based animation: elasticity, inelasticity, and damage mechanics
- The Tristate Workshop on Imaging and Graphics (TWIG) 04/07/2018
  Elastoplasticity simulation in computer graphics
- Rutgers University CS department colloquium 03/09/2018
  Elastoplasticity simulation in computer graphics
- Penn Presbyterian Medical Center 11/01/2017
  Scientific computing for animation, visual effects, virutal injury and surgery
- PICS Conference Emergent Phenomena: Patterns, Function and Beyond 10/05/2017
  Elastoplasticity simulation in computer graphics
- Cisco Research 09/20/2017
  Scientific computing for animation and visual effects
- GAMES: Graphics And Mixed Environment Seminar 08/17/2017
  Advances in Material Point Method for computer graphics
- University of Pennsylvania Perelman School of Medicine 07/24/2017
  Scientific computing: from computer graphics to virtual surgery
- University of Pennsylvania Computer and Information Science Department Summer Session 07/06/2017
  Creating realistic simulations for animations and VFX
- University of Pennsylvania Computer and Information Science Department 12/13/2016

Hybrid methods for computer graphics simulation of snow, sand, water, foam, lava and beyond

- UCLA Human Perception Lab 10/21/2015

  Physics-based simulation of deformable solids and fluids

8 Teaching

- Instructor, Math 269A, UCLA Fall 2025
- Instructor, Math 285J, UCLA Spring 2024
- Instructor, Math 151A, UCLA Winter 2024
- Instructor, Math 269A, UCLA Fall 2023
- Instructor, Math 269B, UCLA Winter 2023
- Instructor, Math 269A, UCLA Fall 2022
- Instructor, Math 285J, UCLA Winter 2022
- Instructor, Math 151A, UCLA Fall 2021
- Instructor, CIS 563: Physically Based Animation, UPenn Fall 2020
- Instructor, CIS 700/006: Special Topics in Computer Graphics, UPenn Fall 2020
- Instructor, EAS 205: Applications of Scientific Computing, UPenn Spring 2020
- Instructor, CIS 563: Physically Based Animation, UPenn Fall 2019
- SIGGRAPH Course instructor and organizer Summer 2019

  On Hybrid Lagrangian-Eulerian Simulation Methods: Practical Notes and High-Performance Aspects
- Instructor, EAS 205: Applications of Scientific Computing, UPenn Spring 2019
- Instructor, CIS 563: Physically Based Animation, UPenn Fall 2018
- Instructor, CIS 563: Physically Based Animation, UPenn Spring 2018
- Instructor, CIS 700/004: Physics-Based Material Simulation, UPenn Fall 2017
- SIGGRAPH Course instructor and organizer Summer 2016

  The Material Point Method for Physics Based Simulation: Modeling and Discretization
- Teaching Assistant, Introduction to C++ Programming (PIC 10A), UCLA Spring 2012
- Teaching Assistant, Introduction to C++ Programming (PIC 10A), UCLA Winter 2012
- Assistant Lecturer, University of Science and Technology of China 2009-2010

9 Service

University (date in terms of academic year)

- PhD Qual Committee (ONLA), Department of Mathematics, UCLA 2025-2026
- Computing Committee, Department of Mathematics, UCLA 2025-2026
- Development Committee, Department of Mathematics, UCLA 2025-2026
- Faculty Advisor for the Math of Computation Major, Department of Mathematics, UCLA 2025-2026
- Tenured Professors Elected Committee, Department of Mathematics, UCLA 2025-2026
- PhD Qual Committee (ONLA), Department of Mathematics, UCLA 2024-2025
- Faculty Advisor for the Math of Computation Major, Department of Mathematics, UCLA 2024-2025
- Tenured Professors Elected Committee, Department of Mathematics, UCLA 2024-2025
- Computing Committee, Department of Mathematics, UCLA 2023-2024
- Undergraduate Advising, Department of Mathematics, UCLA 2023-2024
- Graduate Advisor, Department of Mathematics, UCLA 2023-2024
- Faculty Advisor for the Math of Computation Major, Department of Mathematics, UCLA 2023-2024
- PhD Qual Committee (ONLA), Department of Mathematics, UCLA 2023-2024
- Computing Committee, Department of Mathematics, UCLA 2022-2023
- PIC Committee, Department of Mathematics, UCLA 2022-2023
- Graduate Advisor, Department of Mathematics, UCLA 2022-2023

- Graduate Admission Committee, Department of Mathematics, UCLA 2022-2023
- Faculty Advisor for the Math of Computation Major, Department of Mathematics, UCLA 2022-2023
- PhD Qual Committee (ONLA), Department of Mathematics, UCLA 2022-2023
- Computing Committee, Department of Mathematics, UCLA 2021-2022
- PIC Committee, Department of Mathematics, UCLA 2021-2022
- Graduate Advisor, Department of Mathematics, UCLA 2021-2022
- PhD Qual Committee (ONLA), Department of Mathematics, UCLA 2021-2022
- ABET coordinator, Department of CIS, University of Pennsylvania 2020-2021
- Chair, Penn Institute for Computational Science (PICS) workshop series 2020-2021
- Chair, Penn Institute for Computational Science (PICS) workshop series 2019-2020
- Chair, Penn Institute for Computational Science (PICS) workshop series 2018-2019
- Chair, Penn Institute for Computational Science (PICS) workshop series 2017-2018

Professional Roles

- Co-organizer, Workshop on Vision Meet Physics, CVPR 2025
- Technical Papers Committee, Symposium on Computer Animation (SCA) 2024
- Scientific committee, International Experts Summit on AI and ML 2024
- Technical Papers Committee, ACM SIGGRAPH Asia 2023
- Co-chair, ACM SIGGRAPH Symposium on Computer Animation (SCA) Conference 2023
- Technical Papers Committee, ACM SIGGRAPH Asia 2022
- Co-chair, 1st Workshop on Simulation Technology for Embodied AI at ICCV 2021
- Chair, Symposium on Computer Animation (SCA) Showcase Program 2021
- Technical Papers Committee, ACM SIGGRAPH 2020
- Technical Papers Committee, Eurographics 2020
- Chair, UPenn SIG Computer Graphics Colloquium Series 2020
- Co-chair, 5th Workshop on Vision Meets Cognition, CVPR 2019
- Technical Papers Committee, Symposium on Computer Animation (SCA) 2019
- Session Chair, Symposium on Computer Animation (SCA) 2019
- Co-chair, 2018 PICS Conference on Modern Computational Science 2018
- Co-chair, 4th Workshop on Vision Meets Cognition, CVPR 2018
- Organizer, The Tristate Workshop on Imaging and Graphics (TWIG) 2018
- Co-chair, 3rd Workshop on Vision Meets Cognition, CVPR 2017
- Technical Papers Committee, Symposium on Computer Animation (SCA) 2017
- Co-chair, 1st Workshop on Virtual Reality meets Physical Reality, SIGGRAPH Asia 2016
- Co-chair, 2nd Workshop on Physical and Social Scene Understanding, CogSci 2016

Refereeing

- ACM Transaction on Graphics (TOG)
- IEEE Transactions on Visualization and Computer Graphics (TVCG)
- ACM SIGGRAPH
- ACM SIGGRAPH Asia
- Symposium on Computer Animation (SCA)
- Eurographics (EG)
- Pacific Graphics (PG)
- Computer Graphics Forum (CGF)
- Computer & Graphics
- Computer Animation and Virtual Worlds (CAVW)
- Computer Vision and Pattern Recognition (CVPR)

- International Conference on Machine Learning (ICML)
- International Conference on Learning Representations (ICLR)
- Association for the Advancement of Artificial Intelligence (AAAI)
- Computer Methods in Applied Mechanics and Engineering (CMAME)
- Computational Particle Mechanics (CPM)
- Additive Manufacturing
- Haptics Symposium
- IEEE Transactions on Biomedical Engineering
- CAAI Transactions on Intelligent Technology
- AIMS Inverse Problems and Imaging

10 Supervision

Postdocs Supervised

- Ying Jiang, UCLA Mathematics 10/2024- Present
- Jiayin Lu, UCLA Mathematics 07/2024- Present
  Institute for Digital Research and Education (IDRE) Postdoctoral Fellowship Winner 2025
- Minchen Li, UCLA Mathematics 07/2021-06/2023
  Next stop: Assistant Professor at CMU Computer Science
- Ming Gao, UPenn CIS 08/2018-06/2019
  Next stop: Research scientist at Tencent America
- Andre Pradhana Tampubolon, UPenn CIS 06/2017-07/2018
  Next stop: Research engineer at Dreamworks

PhD Students Supervised

- Siyu Ma (co-advised with Hao Su), CS 2025- Present
- Xiang Feng (co-advised with Hao Su), CS 2025- Present
- Junli Cao (co-advised with Demetri Terzopoulos), UCLA CS 2024- Present
- Yaowei Guo (co-advised with Demetri Terzopoulos), UCLA CS 2024- Present
- Mikkel Metzsch Jensen (co-advised with Johan Gaume), ETH Zurich D-BAUG 2024- Present
- Chang Yu (co-advised with Demetri Terzopoulos), UCLA CS 2023- Present
  Meshy Fellowship winner 2025
- Tianyi Xie (co-advised with Demetri Terzopoulos), UCLA CS 2023- Present
- Yunuo Chen, UCLA Mathematics 2021- Present
- Zeshun Zong, UCLA Mathematics 2021- 2025
  Dissertation: Toward Efficient and Robust Physical Simulation and Physics-guided Content Generation (Defended 2025/5/19)
- Xuan Li, UCLA Mathematics 2021- 2025
  Dissertation: Accurate and Efficient Multi-Material Simulations for Physics-Integrated Digital Twins (Defended 2025/3/3)
- Ziyin Qu, UPenn Computer and Information Science 2019- 2024
  Dissertation: Advancing Discretization Methods for Fluid Simulation (Defended 2024/12/6)
- Yushan Han (co-advised with Joseph Teran), UCLA Mathematics 2023- 2024
  Dissertation: Novel Methods for Efficient Musculoskeletal-Driven Skin Deformation of Animated Characters (Defended 2024/5/31)
- Yizhou Chen (co-advised with Joseph Teran), UCLA Mathematics 2023- 2024
  Dissertation: Novel Efficient Implicit Methods for Elastic Solids And Cloth (Defended 2024/5/22)
- Yadi Cao (co-advised with Demetri Terzopoulos), UCLA Computer Science 2021-2024

Dissertation: Advancing Physics-Based Simulations: Integrating Conventional and Machine-Learning Approaches for Enhanced Computational Efficiency (Defended 2024/4/11).

- Yuxing Qiu (co-advised with Demetri Terzopoulos), UCLA Computer Science 2021-2024
  Dissertation: Scalable and Efficient Material Point Method on Modern Platforms (Defended 2024/1/29).
- Yu Fang, UPenn Computer and Information Science 2018-2023
  Dissertation: Contact Modeling for Optimization Time Integration (Defended 2023/8/23).
- Joshuah Wolper, UPenn Computer and Information Science 2017-2021
  Dissertation: Material Point Methods for Simulating Material Fracture (Defended 2021/4/22).
- Minchen Li, UPenn Computer and Information Science 2018-2020
  Adobe Fellowship winner 2020
  ACM SIGGRAPH Outstanding Doctoral Dissertation Award winner 2021
  Symposium of Computer Animation (SCA) Doctoral Dissertation Award winner 2021
  Dissertation: Robust and Accurate Simulation of Elastodynamics and Contact (Defended 2020/11/16).

Master Students Supervised

- Tianyi Xie, UCLA CS 2022-2023
  Dissertation: A Contact Proxy Splitting Method for Langrangian Solid-Fluid Coupling
- Jin Wu, UPenn AMCS 2021
  Dissertation: Deep Learning Based Two-grid Preconditioner for Conjugate Gradient Solver
- Jiarui Yan, UPenn Computer and Information Science, CGGT 2020-2021
  Dissertation: A Method Of Applying Graph Neural Network Into Nonlinear Deformation Simulation
- Yan Dong, UPenn Computer and Information Science, CGGT 2020-2021
  Dissertation: Neural Projective Dynamics
- Yue Li, UPenn Computer and Information Science, CGGT 2018-2020
  Dissertation: Hybrid Eulerian-Lagrangian Topology Optimization
- Bowen Yang, UPenn Computer and Information Science, CGGT 2018-2019
  Dissertation: Efficient Staggered Grid Fluid Simulation Bounded on Sphere Surfaces
- Ziyin Qu, UPenn Scientific Computing Master's 2017-2019

Undergraduate Students Supervised

- Yuqi Liang, UESTC visiting undergraduate student 10/2025- Present
- Rosalinda Chen, UCLA Math 10/2025- Present
- Mucheng Zhu, UCLA Math 7/2025- Present
- Peihang Lin, UCLA Math 7/2025- Present
- Shanmei Wanyan, UCLA Math 7/2025- Present
- Evelyn Zhu, UCLA Math 7/2025- Present
- Faith Luo, UCLA Math 7/2025- Present
- Joy Liu, UCLA Math 10/2023-06/2024
- Boqian Li, HUST visiting undergraduate student 11/2023-05/2024
- Jianping Ye, UCLA Math summer REU program 06/2021-06/2022
- Sian Wen, UCLA Math summer REU program 06/2021-06/2022
- Mingxin Li, UCLA Math summer REU program 06/2021-08/2021
- Yuchuan Yang, UCLA Math summer REU program 06/2021-08/2021
- Haorong Wang, UPenn CIS undergraduate student, through TGIA grant 07/2020-09/2020
- Beini Gu, UPenn CIS undergraduate student, through TGIA grant 07/2020-09/2020
- Enoch Solano-Sanchez, UPenn CIS undergraduate student, through TGIA grant 07/2019-09/2019
- Saranya Sampath, UPenn CIS undergraduate student, through TGIA grant 07/2019-09/2019
- Nicholas Magarino, UPenn CIS undergraduate student, through TGIA grant 07/2019-09/2019
- Sang Lee, UPenn CIS undergraduate student, through TGIA grant 07/2019-09/2019

- Shenqi Hu, UPenn CIS undergraduate student, through TGIA grant 07/2019-09/2019
- Thy Tran, UPenn CIS undergraduate student, through TGIA grant 07/2019-09/2019
- Jiecong Lu, UPenn CIS (DMD) undergraduate student 09/2018-06/2020
- Meggie Cheng, UPenn CIS (DMD) undergraduate student 09/2019-06/2020
- Yunuo Chen, University of Science and Technology of China visiting student 07/2019-09/2019
- Yi Gu, University of Michigan visiting student 07/2018-09/2018
- Chen Li, University of Science and Technology of China visiting student 07/2018-09/2018
- Liangzhen Fei, University of Science and Technology of China visiting student 07/2018-09/2018
- Mark Choi, UPenn CIS undergraduate student 07/2018-09/2018
- Xinyang Zhang, University of California, Los Angeles visiting student 07/2018-09/2018
- Xingjian Han, University of California, Berkeley visiting student 05/2018-03/2019
- Yuanming Hu, MIT EECS / Tsinghua University visiting student 07/2017-09/2017
- Hannah Bollar, UPenn CIS undergraduate student 06/2017-12/2017
- Yu Fang, Tsinghua University visiting undergraduate student 06/2017-01/2018
- Ziheng Ge, University of Science and Technology of China visiting student 06/2017-12/2017
- Duotun Wang, Beijing Institute of Technology undergraduate student 07/2017-09/2017
- Wenting Sun, UPenn CIS undergraduate student 06/2017-09/2017
- Jason Wang, UPenn CIS undergraduate student 06/2017-09/2017

Visiting Scholars/Professors/Graduate Students Hosted

- Yanjia Huang, visiting graduate student 11/2025- Present
- Zeng Tao, visiting graduate student 10/2025- Present
- Yuxin Jiang, visiting researcher 10/2025- Present
- Yumeng He, USC visiting graduate student 10/2025- Present
- Wenxin Du, visiting researcher 04/2024-06/2025
- Siyu Ma, UCSD visiting graduate student 01/2024-06/2025
- Pingying Chen, visiting graduate student 04/2024-12/2024
- Xiyang Tan, visiting researcher 04/2024-12/2024
- Ying Jiang, HKU visiting PhD student 01/2023-09/2024
- Yidong Zhao, KAIST visiting PhD student 10/2023-02/2024
- Johan Gaume, EPFL visiting professor 05/2022-05/2022
- Lars Blatny, EPFL visiting PhD student 05/2022-05/2022
- Xuan Li, State University of New York at Stony Brook 09/2019-08/2020
- Xinlei Wang, Zhejiang University 10/2018-01/2020
- Yuxing Qiu, University of California, Los Angeles 07/2019-01/2020
- Kang Li, Hubei University visiting Professor 09/2018-09/2019
- Johan Gaume, EPFL visiting professor 10/2018-11/2018
- Yupeng Jiang, University of Sydney 10/2018-02/2019

PhD Dissertation Defense Committee Served NOT as the Advisor

- Steven Truong, UCLA Math 2025
- Erin George, UCLA Math 2025
- Osman Akar, UCLA Math 2024
- Tianwei Wu, UPenn MSE 2024
- Yidong Zhao, KAIST Civil and Environmental Engineering 2024
- Yushan Han, UCLA Math 2024
- Yizhou Chen, UCLA Math 2024
- Wuyue Lu, UCLA CS 2024

- Jinyuan Liu, Dartmouth CS 2024
- Alexander Mayer, UCLA Math 2023
- Benjamin Jarman, UCLA Math 2023
- Xiao Zeng, UCLA CS 2022
- Feng Gao, UCLA CS 2022
- Nghia Truong, Utah CS 2019
- Tiantian Liu, UPenn CIS 2018
- Ming Gao, UW-Madison CS 2018

Master Student Thesis Committee Served NOT as the Advisor

- Avalon Vinella, UCLA CS 2024
- Tomoyori Iwao, UCLA CS 2022
- Xinling Yu, UPenn AMCS 2021
- Yaoyi Bai, UPenn CGGT 2018

11 Publications

Google Scholar

Papers

135. Xiyang Tan*, Ying Jiang*, Xuan Li*, Zeshun Zong, Tianyi Xie, Yin Yang, Chenfanfu Jiang, PhysMotion: Physics-Grounded Dynamics From a Single Image, International Conference on 3D Vision (3DV), 2026
134. Chang Yu*, Siyu Ma*, Wenxin Du, Zeshun Zong, Han Xue, Wendi Chen, Cewu Lu, Yin Yang, Xuchen Han, Joseph Masterjohn, Alejandro Castro, Chenfanfu Jiang, Right-Side-Out: Learning Zero-Shot Sim-to-Real Garment Reversal, Arxiv, 2025
133. Chenfanfu Jiang, Substepping the Material Point Method, Arxiv, 2025
132. Yidong Zhao, Xuan Li, Chenfanfu Jiang, Jinhyun Choo, GeoWarp: An Automatically Differentiable and GPU-Accelerated Implicit MPM Framework for Geomechanics based on NVIDIA Warp, Arxiv, 2025
131. Yuyang Li*, Wenxin Du*, Chang Yu*, Puhao Li, Zihang Zhao, Tengyu Liu, Chenfanfu Jiang†, Yixin Zhu†, Siyuan Huang† (equal contributions), Taccel: Scaling Up Vision-based Tactile Robotics via High-performance GPU Simulation, Neural Information Processing Systems (NeurIPS), 2025
NeurIPS Spotlight
130. Yunuo Chen, Junli Cao, Vidit Goel, Sergei Korolev, Chenfanfu Jiang, Jian Ren, Sergey Tulyakov, Anil Kag, Towards Physical Understanding in Video Generation: A 3D Point Regularization Approach, Neural Information Processing Systems (NeurIPS), 2025
129. Siyu Ma*, Wenxin Du*, Chang Yu*, Ying Jiang*, Zeshun Zong, Tianyi Xie, Yunuo Chen, Yin Yang, Xuchen Han, Chenfanfu Jiang, GRIP: A General Robotic Incremental Potential Contact Simulation Dataset for Unified Deformable-Rigid Coupled Grasping, International Conference on Intelligent Robots and Systems (IROS), 2025
128. Chang Yu*, Wenxin Du*, Zeshun Zong, Alejandro Castro, Chenfanfu Jiang, Xuchen Han, A Convex Formulation of Material Points and Rigid Bodies with GPU-Accelerated Async-Coupling for Interactive Simulation, International Conference on Intelligent Robots and Systems (IROS), 2025
127. Xuan Li*, Chang Yu*, Wenxin Du*, Ying Jiang*, Tianyi Xie, Yunuo Chen, Yin Yang, Chenfanfu Jiang, Dress-1-to-3: Single Image to Simulation-Ready 3D Outfit with Diffusion Prior and Differentiable Physics, ACM Transactions on Graphics (Proceedings of SIGGRAPH), 2025
126. Lei Lan, Tianjia Shao, Zixuan Lu, Yu Zhang, Chenfanfu Jiang, Yin Yang, 3DGS2: Near Second-order Converging 3D Gaussian Splatting, ACM SIGGRAPH, 2025
125. Lei Lan, Zixuan Lu, Chun Yuan, Weiwei Xu, Hao Su, Huamin Wang, Chenfanfu Jiang, Yin Yang, JGS2: Near Second-order Converging Jacobi/Gauss-Seidel for GPU Elastodynamics, ACM Transactions on Graphics (Proceedings of SIGGRAPH), 2025

124. Zixuan Lu, Ziheng Liu, Lei Lan, Huamin Wang, Yuko Ishiwaka, Chenfanfu Jiang, Kui Wu, Yin Yang, High-performance CPU Cloth Simulation Using Domain-decomposed Projective Dynamics, ACM Transactions on Graphics (Proceedings of SIGGRAPH), 2025
SIGGRAPH 2025 Best Paper Honorable Mention
123. Siyuan Shen, Tianjia Shao, Kun Zhou, Chenfanfu Jiang, Sheldon Andrews, Victor Zordan, Yin Yang, Elastic Locomotion with Mixed Second-order Differentiation, ACM SIGGRAPH, 2025
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10. Lars Blatny, Henning Lowe, Stephanie Wang, Chenfanfu Jiang, Johan Gaume. Microstructure-based modeling of snow using the material point method and finite strain elastoplasticity. 2020.
9. Johan Gaume, Theodore Gast, Joseph Teran, Alec van Herwijnen, Chenfanfu Jiang, Unified modeling of the release and flow of snow avalanches using MPM, ECCM ECFD, 2018

8. Tomer Weiss, Alan Litteneker, Chenfanfu Jiang, Demetri Terzopoulos, Position-Based Multi-Agent Dynamics for Real-Time Crowd Simulation, ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA 2017 Posters), 2017
7. Chenfanfu Jiang, Craig Schroeder, Joseph Teran, A New Particle-In-Cell Technique for Reducing Noise, 14th U.S. National Congress on Computational Mechanics, 2017.
6. Yixin Zhu*, Chenfanfu Jiang* , Yibiao Zhao, Demetri Terzopoulos, Song-Chun Zhu, Evaluating Physical Quantities and Learning Human Utilities from RGBD Videos, SIGGRAPH Asia (Virtual Reality Meets Physical Reality Workshop), 2016.
5. James Kubricht*, Chenfanfu Jiang*, Yixin Zhu* , Song-Chun Zhu, Demetri Terzopoulos, Hongjing Lu, Probabilistic Simulation Predicts Human Performance on Viscous Fluid-Pouring Problem, Neural Information Processing Systems (NIPS) (Intuitive Physics Workshop), 2016
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3. Kwitae Chong, Chenfanfu Jiang, Anand Santhanam, Demetri Terzopoulos, Peyman Benharash, Joseph Teran, Jeff Eldredge, Numerical Simulation of Hemorrhage in Human Injury, 68th Annual Meeting of the APS Division of Fluid Dynamics, Gallery of Fluid Motion, Volume 60 Number 21, 2015.
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1. Jian Zheng, Chenfanfu Jiang, Bin Zhao, Relativistic Correction of $(v/c)^2$ to the Collective Thomson Scattering, Bulletin of the American Physical Society, vol. 55, (APS 2010), 2010.

12 Selected Publicity

- (ACM SIGGRAPH) 3D Generative AI Transforms How We Create, Design, Interact With Digital Content
- (UCLA) Professor Chenfanfu Jiang's Collaboration with Toyota Research Institute Recognized as Finalist for IROS 2024 RoboCup Best Paper Award
- (UCLA) Professor Chenfanfu Jiang Receives 2023 Amazon Science Hub Award
- (Amazon) Amazon and UCLA announce 2023 Science Hub awards
- (Radiance Fields) VR-GS: Physics Based Gaussian Splatting in VR
- (Medium) Revolutionizing 3D Modeling with PIE-NeRF Innovation
- (Radiance Fields) PIE-NeRF Serves Up a New Slice: Physics-Based NeRFs
- (Marktechpost) Meet PhysGaussian: An Artificial Intelligence Technique that Produces High-Quality Novel Motion Synthesis by Integrating Physically Grounded Newtonian Dynamics into 3D Gaussians
- (Medium) PhysGaussian Blends Physics with 3D Rendering Innovation
- (UCLA) Professor Chenfanfu Jiang awarded Sony Faculty Innovation Award
- (Decoder) PAC-NeRF learns physical properties of objects from videos
- (UCR) UC grant to create computer code library for engineering applications
- (UCLA) UCLA team receives best paper award at international robotics conference
- (UCLA) Best Paper Award on Mechanisms and Design at ICRA 2021
- (UCLA) Interview with new faculty Chenfanfu Jiang
- (Penn) Simulation of glacial calving and tsunami waves predicts climate change consequences
- (Penn) Penn Engineers' New Simulation of Glacial Calving and Tsunami Waves Accurately Predicts these Climate Change Consequences
- (80 Level) Fracture Studies for Game and Movie Animation
- (Technology) AnisoMPM: Animating Anisotropic Damage Mechanics
- (ECP) ECP-Funded Research Develops Solutions for Additive Manufacturing Simulation Needs
- (ACM SIGGRAPH) New Research From University of Pennsylvania Examines Realistic Damage Mechanics
- (Gizmodo) Meat-Tearing CG Breakthrough Promises to Make Video Game Injuries Disgustingly Realistic
- (ACM) Meat-Tearing CG Breakthrough Promises to Make Video Game Injuries Disgustingly Realistic

- (80lv) Fracture Studies for Game and Movie Animation
- (The Takeout) Advances in science: We can now tear CGI bread in half
- (Vice) We Are Not Prepared for the Next Generation of CGI Food
- (Nature) The 50 most read Nature Communications Earth and planetary sciences articles published in 2018
- (ACM Technews) Computer Scientists Create CG Sand That Looks Unbelievably Real
- (Penn) The snow graphics in Frozen can predict the mechanics of real avalanches
- (UCLA) Best Paper Award at ACM SIGGRAPH Conference on Motion in Games 2017
- (Gizmodo) We Finally Figured Out How To Make Realistic CG Mud
- (UCLA) UCLA Engineering honors top alumni, teachers, students at 2016 awards dinner
- (Phys) Mathematicians bring ocean to life for Disney's 'Moana'
- (UCLA) UCLA mathematicians bring ocean to life for Disney's Moana
- (New Scientist) Blood gushes from virtual leg injury to help train combat medics
- (Gizmodo) Simulation of a Leg Gushing Blood Is as Gross as You'd Expect
- (Popular Science) Here is A Model Of Exactly How A Leg Bleeds Once It's Been Shot
- (Science Net) Researchers use virtual blood to train medics.