XIAO (SEAN) ZHAN

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EDUCATION

Massachusetts Institute of Technology   Sep 2025 - Current
Ph.D. Student, Electrical Engineering and Computer Science

Massachusetts Institute of Technology   Sep 2023 - May 2025
M.Sc., Electrical Engineering and Computer Science. GPA: 5.0/5.0.

Brown University   Sep 2019 - May 2023
B.S. in Applied Math & Computer Science

Cate School   Sep 2015 - May 2019
Secondary School

PUBLICATIONS

PhysiOpt: Physics-Driven Shape Optimization for 3D Generative Models. Xiao Zhan*, Clément Jambon*, Evan Thompson, Kenney Ng, Mina Konaković Luković.
SIGGRAPH ASIA 2025

CharacterMixer: Rig-Aware Interpolation of 3D Characters. Xiao Zhan, Rao Fu, Daniel Ritchie.
Eurographics 2024.

ShapeCrafter: A Recursive Text-Conditioned 3D Shape Generation Model. Rao Fu, Xiao Zhan, Yiwen Chen, Daniel Ritchie, Srinath Sridhar.
NeurIPS 2022.

EXPERIENCE

Research Intern   May 2025 - Aug 2025
Engine Geometry Team   *Roblox, CA*

- Developed a novel technique to perform localized mesh editing with an autoregressive model.
- Currently working towards a publication.

Research Intern   May 2022 - Aug 2022
Pixar Research, advised by Mark Meyer   *Pixar Animation Studios, CA*

- Implemented a part-based neural skinning model to predict corrective shapes for character rigging. Outperformed linear blend skinning by an 80% increase in accuracy.
- Conducted literature review, wrote C++ code to augment data, implemented 3 neural models and 2 training pipelines, ran over 100 experiments. Learned to iterate fast and work with large codebases.

Research Assistant   Jan 2021 - May 2023
Brown Visual Computing   *Brown University, RI*

- **3D Character Interpolation and Generation**, advised by Daniel Ritchie
  - Developed a novel technique to generate and pose new characters by interpolating existing characters of different mesh and skeleton topology, enabling interpolation during animation.
- **Recursive Text-Conditioned 3D Shape Generation**, advised by Srinath Sridhar, Daniel Ritchie
  - Developed novel neural architecture for recursive text-to-shape generation.

PROJECTS

Single Image Relighting (Graphics) Implemented "Generating Digital Painting Lighting Effects via RGB-space Geometry." Improved the refined lighting stage, expanded on the paper by adding specular highlights.

Path Tracer (Graphics) Implemented a path tracer with 4 basic types of BRDFs, soft shadows, Russian Roulette path termination and event splitting with BRDF importance sampling and multiple importance sampling.

Mesh Processing (Graphics) Implemented mesh subdivision, simplification, and denoising.

Finite Element Simulation (Graphics) Implemented finite element simulation with internal elastic and viscous damping forces, collision detection, and RK4 integration.

ARAP (Graphics) Dissected and implemented "As-Rigid-As-Possible Surface Modeling".

Jello Cube (Graphics) Created a jello cube simulation. Implemented various OpenGL shaders for visualizing the cube, wrote physics environment.

Style Transfer (Vision, ML) Implemented vanilla CNN-based style transfer model that transfers artworks' style onto images. Improved the vanilla model by implementing Adaptive Instance Normalization.

Stereo Vision Reconstruction (Vision) Given 3D markers and 2D point correspondence, reconstructed world coordinates of subjects by estimating cameras' projection and fundamental matrices using RANSAC.

Automated Stock Investment (ML) Created a deep reinforcement learning actor-critic agent to manage portfolio and gain profit (quadrupled initial portfolio value). Significantly improved the agent's performance by adding a lifting layer such that GRUs operate on higher dimensional space.

Fork (Software) Built Fork, a decision-making app that suggests restaurants to groups. Wrote a modular and extensible backend with Java and SQL, helped build the React.js frontend and a concurrent socket module.

Rings (Software) Led Hackathon team to develop Rings, a team time management app designed for friends and coworkers. Built a fully functional frontend with React in 1.5 days.

Autonomous Drone Flight (Vision, Software) Programmed a DJI Tello drone, incorporated OpenPose to achieve autonomous flight. The drone is able to track and follow a person and respond to gestures.

AWARDS

MIT Generative AI Impact Consortium Best Poster – Science and Engineering	2025
MathWorks Engineering Fellowship	2025
MIT EECS Graduate Alumni Fellowship	2023
Brown CS Senior Prize	2023
Brown CS Undergrad Research Symposium 2nd Place (out of 19 projects)	2023
Brown CS Undergrad Research Symposium Audience Favorite	2022
Brown Undergrad Teaching and Research Award	2021
Hack@Brown 2021 Winner of Contrary Capital Award (1st out of 66 projects)	2021

FUNDING

MathWorks Engineering Fellowship	2025-2026
MIT-IBM Watson AI Lab	2024-2025
MIT EECS Graduate Alumni Fellowship	2023-2024

SKILLS

Languages	Python, MATLAB, C++, C, JavaScript, Java
Libraries	TensorFlow, PyTorch
Frameworks	React, React-Redux, Node.js, Flask
Soft Skills	Problem-solving, Communication, Team Player