

# ARMAN MAESUMI

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**INTERESTS.** My research spans diffusion/flow matching and representation learning for 3D data. I am interested in developing methods that enable new capabilities and applications for multimodal foundation models, both in 3D and beyond; e.g. by expanding user-facing controllability and accelerating methods for personalization.

## Education

**PhD, Computer Science** Sept 2021 – May 2026 (expected)  
**Brown University** GPA: 4.00  
Advisor: Daniel Ritchie

**BS, Computer Science** Aug 2018 – Aug 2021  
**University of Texas at Austin**  
Advisor: Chandrajit Bajaj

## Experience

**Adobe Research** May 2023 – Dec 2023  
**Research Scientist Intern**, Mentors: Noam Aigerman, Thibault Groueix, Vova Kim San Francisco, CA  
Published PoissonNet, a neural network architecture for learning on surfaces, applied to rig-free animation.

**Adobe Research** May 2022 – Dec 2022  
**Research Scientist Intern**, Mentors: Sören Pirk, Matt Fisher, Vova Kim Remote  
Published diffusion model that interpolates between disjoint data modes, applied to procedural noise patterns.

**Brown University** Sept 2021 – Present  
**Research Assistant**, Advisor: Prof. Daniel Ritchie Providence, RI

**University of Texas at Austin · Computational Visualization Center** Aug 2020 – Dec 2020  
**Undergraduate Researcher**, Advisor: Prof. Chandrajit Bajaj Austin, TX  
Synthesized wearable textures that robustly cloak humans from object detectors using adversarial ML.

**University of Texas at Austin · Dept. of Computer Science** May 2019 – June 2020  
**Undergraduate Researcher**, Advisor: Prof. Chandrajit Bajaj Austin, TX  
Trained neural network to evaluate chess positions. Created largest public dataset of labeled chess positions.

**University of Texas at San Antonio · Dept. of Mathematics** Aug 2017 – May 2018  
**Undergraduate Researcher**, Advisor: Prof. Cody Patterson San Antonio, TX  
Published derivation of probability density and moments of the area of stochastically generated geometry.

## Publications

### [PoissonNet: A Local-Global Approach for Learning on Surfaces](#)

Arman Maesumi, Tanish Makadia, Thibault Groueix, Vladimir G. Kim, Daniel Ritchie, Noam Aigerman  
ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia) 2025

### [One Noise to Rule Them All: Learning a Unified Model of Spatially-Varying Noise Patterns](#)

Arman Maesumi, Dylan Hu, Krishi Saripalli, Vladimir G. Kim, Matthew Fisher, Sören Pirk, Daniel Ritchie  
ACM Transactions on Graphics (Proceedings of SIGGRAPH) 2024

## Explorable Mesh Deformation Subspaces from Unstructured 3D Generative Models

Arman Maesumi, Paul Guerrero, Vladimir G. Kim, Matthew Fisher, Siddhartha Chaudhuri, Noam Aigerman, Daniel Ritchie  
SIGGRAPH Asia 2023

## Triangle Inscribed-Triangle Picking

Arman Maesumi

The College Mathematics Journal, 50:5, 364-371, 2019

## Awards

NSF Graduate Research Fellowship (GRFP)	2022
MD5 Hackathon: 1st Place Entry, Awarded \$15,000 from Department of Defense	2017

## Software

### Panopti: Interactive 3D Visualization in Python

`pip install panopti`

An interactive 3D framework for Python that supports remote workflows (through SSH) and headless rendering. Rapidly debug your code, on the go!

### Torch Mesh Ops: PyTorch CUDA extension for differential operators on meshes

CUDA kernels that accelerate construction of discrete differential operators on meshes, very useful e.g. when used in a training loop for geometric problems.

### torchrbf: Radial Basis Function Interpolation in PyTorch

`pip install torchrbf`

A PyTorch-based RBF Interpolator that supports auto-diff and is much faster than SciPy's CPU implementation.

## Skills

<b>Languages</b>	Python, C++, CUDA, JavaScript, Go, Java
<b>Topics</b>	Generative models, contrastive learning & SSL, geometric deep learning
<b>Frameworks</b>	PyTorch, HuggingFace Diffusers, PyTorch CUDA API, $\LaTeX$ , libigl, nanobind, Three.js, React
<b>Miscellaneous</b>	Distributed training, LoRA finetuning, ComfyUI, Blender, Adobe Ps/Ai/Ae, Cinema 4D, Linux

## Service

### CONFERENCE REVIEWING

SIGGRAPH	2026
Eurographics	2025, 2026
SIGGRAPH Asia	2024, 2025
Transactions on Visualization and Computer Graphics	2024, 2025
International Conference on Computer Vision (ICCV)	2023

### DEPARTMENTAL SERVICE

Brown Visual Computing Seminar Co-organizer	2023 - Present
Advanced Computer Graphics, Teaching Assistant	2026
Brown PhD Admissions	2025
NSF Research Experiences for Undergraduates Program (REU) mentor	2024, 2025

### MENTORSHIP

Tanish Makadia	Brown CS Undergraduate, 2024-2026
Aruna Anderson	Visiting Undergraduate (NSF REU), 2025
Nicole Ge	Visiting Undergraduate (NSF REU), 2025
Krishi Saripalli	Brown CS Undergraduate, 2024

## Invited Talks

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### **LARGE-SCALE LEARNING ON MESHES WITH MONTE CARLO METHODS**

New England Symposium on Graphics

2026

### **POISSONNET: A LOCAL-GLOBAL APPROACH FOR LEARNING ON SURFACES**

Industrial Light and Magic (ILM)

2025

SIGGRAPH Asia 2025

2025

### **ONE NOISE TO RULE THEM ALL: LEARNING A UNIFIED MODEL OF SPATIALLY-VARYING NOISE PATTERNS**

SIGGRAPH 2024

2024

### **EXPLORABLE MESH DEFORMATION SUBSPACES FROM UNSTRUCTURED 3D GENERATIVE MODELS**

SIGGRAPH Asia 2023

2023

## Personal

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### **3D Art Portfolio**

<https://www.behance.net/armanmaesumi>

### **HumanBenchmark Verbal Memory Personal Record**

735pts (top 0.1-0.5% global)

### **Rubik's Cube Personal Record**

11.25 seconds