

# DANIEL RITCHIE

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## EDUCATION

### Stanford University

PhD, Computer Science

Dissertation: *Probabilistic Programming for Procedural Modeling and Design*

Advisors: Pat Hanrahan, Noah Goodman

Conferred September 2016

### Stanford University

MS, Computer Science

Conferred April 2013

### University of California Berkeley

BA, Computer Science

Conferred May 2010

## EMPLOYMENT

### Associate Professor

Brown University Computer Science Department

Providence, RI

2024 – Present

### Eliot Horowitz Assistant Professor

Brown University Computer Science Department

Providence, RI

2021 – 2024

### Assistant Professor

Brown University Computer Science Department

Providence, RI

2017 – 2021

### Postdoctoral Researcher

Stanford University Computer Science Department

Stanford, CA

2016 – 2017

### Research Intern

Adobe Creative Technologies Lab

San Francisco, CA

Summer 2011

### Graduate Research Assistant

Stanford University Computer Science Department

Stanford, CA

2010 – 2016

### Technical Director Intern

Pixar Animation Studios

Emeryville, CA

Summer 2009

### Software Intern

Hewlett-Packard

Roseville, CA

Summer 2008

## REFEREED

## PUBLICATIONS

All publications listed below follow the author order conventions for visual computing (e.g. graphics, vision, machine learning): the first author is the primary implementer (typically a PhD student), and the last author is typically the direct supervisor of the first author and the principal investigator on the project. Middle authors vary in role, with students and interns typically listed before faculty and senior research scientists.

Annotation scheme for publications started while employed at Brown University (July 2017 onwards):

- **Blue bold text:** PhD student at Brown.
- **Purple bold text:** undergraduate or masters student at Brown.

- **Green bold text**: external PhD student whom Daniel mentored.
- **Orange bold text**: external undergraduate or masters student whom Daniel mentored.

**PoissonNet: A Local-Global Approach for Learning on Surfaces.** **Arman Maesumi**, **Tanish Makadia**, Thibault Grouiex, Vladimir Kim, Daniel Ritchie, Noam Aigerman. *SIGGRAPH Asia 2025*.

**MiGumi: Making Tightly Coupled Integral Joints Millable.** **Aditya Ganeshan**, Kurt Fleischer, Wenzel Jakob, Ariel Shamir, Daniel Ritchie, Takeo Igarashi, Maria Larsson. *SIGGRAPH Asia 2025*.

**Procedural Scene Programs for Open-Universe Scene Generation: LLM-Free Error Correction via Program Search.** **Maxim Gumin**, **Do Heon Han**, **Seung Jean Yoo**, **Aditya Ganeshan**, **R. Kenny Jones**, **Kailiang Fu**, **Rio Aguina-Kang**, **Stewart Morris**, Daniel Ritchie. *SIGGRAPH Asia 2025*.

**PartComposer: Learning and Composing Part-Level Concepts from Single-Image Examples.** **Junyu Liu**, R. Kenny Jones, Daniel Ritchie. *SIGGRAPH Asia 2025*.

**Diorama: Unleashing Zero-shot Single-view 3D Scene Modeling.** **Qirui Wu**, **Denys Iliash**, Daniel Ritchie, Manolis Savva, Angel X. Chang. *ICCV 2025*. HIGHLIGHT.

**Pattern Analogies: Learning to Perform Programmatic Image Edits by Analogy.** **Aditya Ganeshan**, Thibault Groueix, Paul Guerrero, Radomír Měch, Matthew Fisher, Daniel Ritchie. *CVPR 2025*.

**GigaHands: A Massive Annotated Dataset of Bimanual Hand Activities.** **Rao Fu**, **Dingxi Zhang**, **Alex Jiang**, **Wanjia Fu**, **Austin Funk**, Daniel Ritchie, Srinath Sridhar. *CVPR 2025*. HIGHLIGHT.

**Learning to Edit Visual Programs with Self-Supervision.** **R. Kenny Jones**, **Renhao Zhang**, **Aditya Ganeshan**, Daniel Ritchie. *NeurIPS 2024*.

**ParSEL: Parameterized Shape Editing with Language.** **Aditya Ganeshan**, **Ryan Y. Huang**, **Xianghao Xu**, **R. Kenny Jones**, Daniel Ritchie. *SIGGRAPH Asia 2024*.

**R3DS: Reality-linked 3D Scenes for Panoramic Scene Understanding.** **Qirui Wu**, **Sonia Raychaudhuri**, Daniel Ritchie, Manolis Savva, Angel X. Chang. *ECCV 2024*.

**One Noise to Rule Them All: Learning a Unified Model of Spatially-Varying Noise Patterns.** **Arman Maesumi**, **Dylan Hu**, **Krishi Saripalli**, Vladimir Kim, Matthew Fisher, Sören Pirk, Daniel Ritchie. *SIGGRAPH 2024*.

**Learning to Infer Generative Template Programs for Visual Concepts.** **R. Kenny Jones**, Siddhartha Chaudhuri, Daniel Ritchie. *ICML 2024*.

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

**PossibleImpossibles: Exploratory Procedural Design of Impossible Structures.** Yuanbo Li, Tianyi Ma, Zaineb Aljumayyat, Daniel Ritchie. *Eurographics 2024*.

**Generalizing Single-View 3D Shape Retrieval to Occlusions and Unseen Objects.** Qirui Wu, Daniel Ritchie, Manolis Savva, Angel X. Chang. *International Conference on 3D Vision (3DV) 2024*.

**Editing Motion Graphics Videos via Motion Vectorization & Transformation.** Sharon Zhang, Jiaju Ma, Daniel Ritchie, Jiajun Wu, Maneesh Agrawala. *ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia) 2023*.

**Explorable Mesh Deformation Subspaces from Unstructured 3D Generative Models.** Arman Maesumi, Paul Guerrero, Vladimir Kim, Matthew Fisher, Siddhartha Chaudhuri, Noam Aigerman, Daniel Ritchie. *SIGGRAPH Asia 2023*.

**Improving Unsupervised Visual Program Inference with Code Rewriting Families.** Aditya Ganeshan, R. Kenny Jones, Daniel Ritchie. *ICCV 2023*. ORAL PRESENTATION.

**ShapeCoder: Discovering Abstractions for Visual Programs from Unstructured Primitives.** R. Kenny Jones, Paul Guerrero, Niloy Mitra, Daniel Ritchie. *ACM Transactions on Graphics (Proceedings of SIGGRAPH) 2023*.

**Neurosymbolic Models for Computer Graphics** Daniel Ritchie, Paul Guerrero, R. Kenny Jones, Niloy Mitra, Adriana Schulz, Karl D. D. Willis, Jiajun Wu *Eurographics 2023 State-of-the-Art Report*.

**CLIP-Sculptor: Zero-Shot Generation of High-Fidelity and Diverse Shapes from Natural Language** Aditya Sanghi, Rao Fu, Vivian Liu, Karl D.D. Willis, Hooman Shayani, Amir Hosein Khasahmadi, Srinath Sridhar, Daniel Ritchie *CVPR 2023*.

**Unsupervised 3D Shape Reconstruction by Part Retrieval and Assembly.** Xianghao Xu, Paul Guerrero, Matthew Fisher, Siddhartha Chaudhuri, Daniel Ritchie. *CVPR 2023*.

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

**SHRED: 3D Shape Region Decomposition with Learned Local Operations.** R. Kenny Jones, Aalia Habib, Daniel Ritchie. *SIGGRAPH Asia 2022*.

**The Shape Part Slot Machine: Contact-based Reasoning for Generating 3D Shapes from Parts.** Kai Wang, Srinath Sridhar, Paul Guerrero, Vladimir Kim, Siddhartha Chaudhuri, Minhyuk Sung, Daniel Ritchie. *ECCV 2022*.

**Unsupervised Kinematic Motion Detection for Part-segmented 3D Shape Collections.** Xianghao Xu, Yifan Ruan, Srinath Sridhar, Daniel Ritchie. *SIGGRAPH 2022*.

**The Neurally-Guided Shape Parser: Grammar-based Labeling of 3D Shape Regions with Approximate Inference.** R. Kenny Jones, Aalia Habib, Rana Hanocka, Daniel Ritchie. *CVPR 2022*.

**PLAD: Learning to Infer Shape Programs with Pseudo-Labels and Approximate Distributions.** R. Kenny Jones, Homer Walke, Daniel Ritchie. *CVPR 2022*.

**Learning to Infer Kinematic Hierarchies for Novel Object Instances.** Hameed Abdul-Rashid, Miles Freeman, Ben Abbatematteo, George Konidaris, Daniel Ritchie. *ICRA 2022*.

**Roominoes: Generating Novel 3D Floor Plans From Existing 3D Rooms.** Kai Wang, Xianghao Xu, Leon Lei, Natalie Lindsay, Selena Ling, Angel X. Chang, Manolis Savva, Daniel Ritchie. *Symposium on Geometry Processing (SGP) 2021*.

**ShapeMOD: Macro Operation Discovery for 3D Shape Programs.** R. Kenny Jones, David Charatan, Paul Guerrero, Niloy Mitra, Daniel Ritchie. *ACM Transactions on Graphics (Proceedings of SIGGRAPH) 2021*.

**Inferring CAD Modeling Sequences using Zone Graphs.** Xianghao Xu, Wenzhe Peng, Chin-Yi Cheng, Karl D. D. Willis, Daniel Ritchie. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2021*.

**Motion Annotation Programs: A Scalable Approach to Annotating Kinematic Articulations in Large 3D Shape Collections.** Xianghao Xu, David Charatan, Sonia Raychaudhuri, Hanxiao Jiang, Mae Heitmann, Vladimir Kim, Siddhartha Chaudhuri, Manolis Savva, Angel X. Chang, Daniel Ritchie. *International Conference on 3D Vision (3DV) 2020*.

**Shape from Tracing: Towards Reconstructing 3D Object Geometry and SVBRDF Material from Images via Differentiable Path Tracing.** Purvi Goel, Loudon Cohen, James Guesman, Vikas Thamizharasan, James Tompkin, Daniel Ritchie. *International Conference on 3D Vision (3DV) 2020*.

**ShapeAssembly: Learning to Generate Programs for 3D Shape Structure Synthesis.** R. Kenny Jones, Theresa Barton, Xianghao Xu, Kai Wang, Ellen Jiang, Paul Guerrero, Niloy Mitra, Daniel Ritchie. *ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia) 2020*.

**GANHopper: Multi-Hop GAN for Unsupervised Image-to-Image Translation.** Wallace Lira, Johannes Merz, Daniel Ritchie, Daniel Cohen-Or, Hao Zhang. *European Conference on Computer Vision (ECCV) 2020*.

**Learning Generative Models of 3D Structures.** Siddhartha Chaudhuri, Daniel Ritchie, Jiajun Wu, Kai Xu, Hao Zhang. *Eurographics 2020 State-of-the-Art Report*.

**Learning Style Compatibility Between Objects in a Real-World 3D Asset Database.** Yifan Liu, Ruolan Tang, Daniel Ritchie. *Pacific Graphics 2019*.

**PlanIT: Planning and Instantiating Indoor Scenes with Relation Graph and Spatial Prior Networks.** Kai Wang, Yu-an Lin, Ben Weissmann, Manolis Savva, Angel X. Chang, Daniel Ritchie. *ACM Transactions on Graphics (Proceedings of SIGGRAPH) 2019*.

**Fast and Flexible Indoor Scene Synthesis via Deep Convolutional Generative Models.** Daniel Ritchie, Kai Wang, Yu-an Lin. *IEEE Conference on Computer*

*Vision and Pattern Recognition (CVPR) 2019.*

**Learning to Describe Scenes with Programs.** Yunchao Liu, Zheng Wu, Daniel Ritchie, William T. Freeman, Joshua B. Tenenbaum, Jiajun Wu. *International Conference on Learning Representations (ICLR) 2019.*

**Learning to Infer Graphics Programs from Hand-Drawn Images.** Kevin Ellis, Daniel Ritchie, Armando Solar-Lezama, Joshua B. Tenenbaum. *Conference on Neural Information Processing Systems (NeurIPS) 2018.* SPOTLIGHT PRESENTATION.

**Improving Shape Deformation in Unsupervised Image-to-Image Translation** Aaron Gokaslan, Vivek Ramanujan, Daniel Ritchie, Kwang In Kim, James Tompkin. *European Conference on Computer Vision (ECCV) 2018.*

**Deep Convolutional Priors for Indoor Scene Synthesis** Kai Wang, Manolis Savva, Angel X. Chang, Daniel Ritchie. *ACM Transactions on Graphics (Proceedings of SIGGRAPH) 2018.*

**ScanComplete: Large-Scale Scene Completion and Semantic Segmentation for 3D Scans** Angela Dai, Daniel Ritchie, Martin Bokeloh, Scott Reed, Jürgen Sturm, Matthias Nießner. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2018.*

**Example-based Authoring of Procedural Modeling Programs with Structural and Continuous Variability** Daniel Ritchie, Sarah Jobalia, Anna Thomas *Proceedings of Eurographics 2018.*

**An Improved Training Procedure for Neural Autoregressive Data Completion.** Maxime Voisin, Daniel Ritchie. *NIPS 2017 Bayesian Deep Learning Workshop.*

**Neurally-Guided Procedural Models: Amortized Inference for Procedural Graphics Programs using Neural Networks.** Daniel Ritchie, Anna Thomas, Pat Hanrahan, Noah D. Goodman. *Conference on Neural Information Processing Systems (NIPS) 2016.*

**C3: Lightweight Incrementalized MCMC for Probabilistic Programs using Continuations and Callsite Caching.** Daniel Ritchie, Andreas Stuhlmüller, Noah D. Goodman. *International Conference on Artificial Intelligence and Statistics (AISTATS) 2016.*

**Controlling Procedural Modeling Programs with Stochastically-Ordered Sequential Monte Carlo.** Daniel Ritchie, Ben Mildenhall, Noah D. Goodman, and Pat Hanrahan. *ACM Transactions on Graphics (Proceedings of SIGGRAPH) 2015.*

**Generating Design Suggestions under Tight Constraints with Gradient-based Probabilistic Programming.** Daniel Ritchie, Sharon Lin, Noah D. Goodman, and Pat Hanrahan. *Proceedings of Eurographics 2015.* BEST PAPER HONORABLE MENTION.

**Quicksand: A Lightweight Embedding of Probabilistic Programming for Procedural Modeling and Design.** Daniel Ritchie. *The 3rd NIPS Workshop on Probabilistic Programming, 2014.*

**First-class Runtime Generation of High-performance Types using Exotypes.** Zach Devito, Daniel Ritchie, Matthew Fisher, Alex Aiken, and Pat Hanrahan. *Programming Language Design and Implementation (PLDI) 2014*.

**Probabilistic Color-by-Numbers: Suggesting Pattern Colorizations Using Factor Graphs.** Sharon Lin, Daniel Ritchie, Matthew Fisher, and Pat Hanrahan. *ACM Transactions on Graphics (Proceedings of SIGGRAPH) 2013*.

**Example-based Synthesis of 3D Object Arrangements.** Matthew Fisher, Daniel Ritchie, Manolis Savva, Thomas Funkhouser, and Pat Hanrahan. *ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia) 2012*.

**d.tour: Style-based Exploration of Design Example Galleries.** Daniel Ritchie, Ankita Arvind Kejriwal, and Scott R. Klemmer. *ACM Symposium on User Interface Software and Technology (UIST) 2011*.

**Dynamic Local Remeshing for Elastoplastic Simulation.** Martin Wicke, Daniel Ritchie, Bryan M. Klingner, Sebastian Burke, Jonathan R. Shewchuk, and James F. O'Brien. *ACM Transactions on Graphics (Proceedings of SIGGRAPH) 2010*.

**Interactive Simulation of Surgical Needle Insertion and Steering.** Nuttapon Chentanez, Ron Alterovitz, Daniel Ritchie, Lita Cho, Kris K. Hauser, Ken Goldberg, Jonathan R. Shewchuk, and James F. O'Brien. *ACM Transactions on Graphics (Proceedings of SIGGRAPH) 2009*.

## TECHNICAL REPORTS

**CLIPtortionist: Zero-shot Text-driven Deformation for Manufactured 3D Shapes.** [Xianghao Xu](#), Srinath Sridhar, Daniel Ritchie. *arXiv:2410.15199, 2024*.

**Creating Language-driven Spatial Variations of Icon Images.** [Xianghao Xu](#), [Aditya Ganeshan](#), Karl D. D. Willis, Yewen Pu, Daniel Ritchie. *arXiv:2405.19636, 2024*.

**Open-Universe Indoor Scene Generation using LLM Program Synthesis and Uncurated Object Databases.** [Rio Aguina-Kang](#), [Maxim Gumin](#), [Do Heon Han](#), [Stewart Morris](#), [Seung Jean Yoo](#), [Aditya Ganeshan](#), [R. Kenny Jones](#), [Qihong Anna Wei](#), Kailiang Fu, Daniel Ritchie. *arXiv:2403.09675, 2024*.

**Learning Body-Aware 3D Shape Generative Models.** [Bryce Blinn](#), [Alexander Ding](#), [R. Kenny Jones](#), Manolis Savva, Srinath Sridhar, Daniel Ritchie. *arXiv:2112.07022, 2021*.

**Deep Amortized Inference for Probabilistic Programs.** Daniel Ritchie, Paul Horsfall, Noah D. Goodman. *arXiv:1610.05735, 2016*.

## INVITED TALKS

**Programmatic Generative Visual Concepts**  
CVPR, *Second Workshop on Visual Concepts* June 2025

**Neurosymbolic Modeling Paradigms for Computer Graphics**  
INRIA, *GraphDeco Retreat* October 2024

**Deep Learning for 3D Geometry**  
Symposium on Geometry Processing, *Graduate School* June 2024

**Neurosymbolic Models for 3D Content Creation**  
 ICCV, *AI for 3D Content Creation Workshop* October 2023

**Inferring Programs for 3D Shapes without Supervision**  
 ICCV, *SHARP Workshop - Solving CAD History and pArameters Recovery from Point clouds and 3D scans* October 2023

**Neurosymbolic Models for 3D Generative AI**  
 ICML, *The Role of Generative AI in Shaping the Next Generation of the Metaverse* July 2023

**Learning to Represent Shapes as Programs**  
 Symposium on Geometry Processing, *Graduate School* July 2022

**Programs as Representations for Inferring and Generating 3D Structures**  
 Cornell University, *Graphics/Vision Seminar* March 2022

**Conversations with Research Pioneers: Daniel Ritchie**  
 Unity Technologies, *Conversations with Research Pioneers* December 2021

**AI-assisted 3D Content Creation: Successes, Challenges, & Opportunities**  
 Roblox, *Research Colloquium* December 2021

**Learning to Infer and Generate Programs for 3D Shapes and Scenes**  
 ICCV, *Holistic Structures for 3D Vision Workshop* October 2021  
 ICCV, *Structural and Compositional Learning on 3D Data Workshop* October 2021

**Neurosymbolic Generative Models for Structured 3D Content**  
 3DGV, *3D Geometry and Vision Seminar* February 2021

**Learning Neurosymbolic 3D Models**  
 PROBPLOG, *International Conference on Probabilistic Programming* March 2020

**Everything You Need to Know About Deep Fakes**  
 Full Stack at Brown, *Hack@Home* October 2020

**Neurosymbolic 3D Models: Learning to Generate 3D Shape Programs**  
 GAMES, *Graphics and Mixed Environment Seminar* August 2020

**Toward Synthesizing Training Data for 3D Scene Understanding**  
 CVPR, *3D Scene Understanding Workshop* June 2020

**From Neural to Neurosymbolic 3D Modeling**  
 CVPR, *Neurosymbolic Visual Learning & Program Induction Workshop* June 2020

**Neurosymbolic 3D Models**  
 MIT, *Vision Seminar* March 2020

**Learning to Generate 3D Structures**  
 Brown Department of Biostatistics, *Deep Learning Seminar* February 2020

**Deep Learning for Graph(ic)s**  
 Simon Fraser University, *Visual Computing Group* December 2019

|   |                |
|---|----------------|
| <b>Learning to Generate Visual Structures</b><br>Carney Institute for Brain Science, <i>Lunch Seminar</i>                       | October 2019   |
| <b>Indoor Scene Synthesis: Past, Present, and Future</b><br>Shenzhen University, <i>Visual Computing Summer School</i>          | July 2019      |
| <b>Probabilistic Programming</b><br>Brown ICERM, <i>Computer Vision Semester Program</i>  | February 2019  |
| <b>Virtual Indoor Scene Synthesis: Past, Present, and Future</b><br>MIT, <i>Graphics Lunch</i>                                  | December 2018  |
| <b>Toward Style-Aware Generative Models of Virtual Indoor Scenes</b><br>Wayfair LLC, <i>Computer Vision / Data Science Team</i> | December 2018  |
| <b>Visual Program Induction</b><br>Brown Applied Math, <i>Pattern Theory Seminar</i>  | November 2018  |
| <b>Probabilistic Programming for Computer Graphics</b><br>MIT, <i>PROBPROG 2018</i>   | October 2018   |
| <b>Learning Procedural Modeling Programs from Examples</b><br>MIT, <i>New England Symposium on Graphics</i>                     | April 2018     |
| Microsoft Research Cambridge, <i>New England Machine Learning Day</i>   | May 2018       |
| <b>Learning from Large-Scale Synthetic 3D Scene Data</b><br>Brown University Data Science Initiative, <i>Datathon</i>           | March 2018     |
| <b>Inferring Graphics Programs</b><br>University of Washington, <i>ML+PL Workshop</i>   | February 2018  |
| <b>Learning and Inferring Graphics Programs</b><br>MIT, <i>Vision Seminar</i>   | September 2017 |
| <b>Creative AI for Computer Graphics (It's More Than Just Style Transfer)</b><br>Google Brain, <i>Magenta Group</i>             | January 2017   |
| <b>Probabilistic Programming for Procedural Modeling and Design</b><br>Adobe Systems, <i>Creative Technologies Lab</i>          | March 2016     |
| Brown University, <i>Computer Science Department</i>  | February 2016  |
| Harvey Mudd College, <i>Computer Science Department</i>   | February 2016  |
| Yale University, <i>Computer Science Department</i>   | February 2016  |

**PANELIST** Seminar #3: Visual Reasoning. *COGGRAPH 2024*.

Advances in Software for Approximate Bayesian Inference. *NIPS 2016 Workshop on Advances in Approximate Bayesian Inference*.

**TUTORIALS & WORKSHOPS** **AI for 3D Content Creation** October 2025  
 Hezhen Hu, Georgios Pavlakos, Despoina Paschalidou, Nikos Kolotouros, Davis Rempe, Angel Xuan Chang, Kai Wang, Amlan Kar, Kaichun Mo, Daniel Ritchie, Leonidas Guibas  
 ICCV 2025 Workshop



**LLMs in the Technical Papers Review Process**

August 2025

Daniel Ritchie, Rana Hanocka  
SIGGRAPH 2025 Birds of a Feather

**Countering Racial Bias in Computer Graphics Research**

August 2025

Theodore Kim, Daniel Aliaga, Curtis Andrus, Ana Dodik, Daniel Ritchie, Oded Stein,  
Chenxi Liu, Victor Araujo  
SIGGRAPH 2025 Birds of a Feather

**AI for 3D Content Creation**

September 2024

Despoina Paschalidou, Georgios Pavlakos, Davis Rempe, Angel Xuan Chang, Kai  
Wang, Amlan Kar, Daniel Ritchie, Kaichun Mo, Manolis Savva, Paul Guerrero, Siyu  
Tang, Leonidas Guibas  
ECCV 2024 Workshop

**Mentoring PhD Students in Computer Graphics**

July 2024

Daniel Ritchie  
SIGGRAPH 2024 Birds of a Feather

**AI for 3D Generation**

June 2024

Despoina Paschalidou, Georgios Pavlakos, Davis Rempe, Angel Xuan Chang, Kai  
Wang, Amlan Kar, Daniel Ritchie, Kaichun Mo, Manolis Savva, Paul Guerrero, Siyu  
Tang, Leonidas Guibas  
CVPR 2024 Workshop

**3D Vision and Modeling Challenges in eCommerce**

October 2023

Angel Chang, Jasmine Collins, Huan Fu, Francesca Gil-Ureta, Erhan Gundogdu, Yim-  
ing Qian, Daniel Ritchie, Javier Romero, Jian Wang, Fenggen Yu, Xu Zhang  
ICCV 2023 Workshop

**Learning to Generate 3D Shapes and Scenes**

October 2022

Kai Wang, Akshay Gadi Patil, Angel X. Chang, Paul Guerrero, Daniel Ritchie, Manolis  
Savva  
ECCV 2022 Workshop

**Machine Learning in Computational Design**

September 2022

Andrew Spielberg, Caitlin Mueller, Lydian Chilton, Rafael Gomez-Bombarelli, Vladimir  
Kim, Daniel Ritchie  
ICML 2022 Workshop

**Learning to Generate 3D Shapes and Scenes**

June 2021

Manyi Li, Zhenpei Yang, Angel X. Chang, Siddhartha Chaudhuri, Daniel Ritchie,  
Manolis Savva  
CVPR 2021 Workshop

**Synthetic 3D Scene Datasets: Needs & Opportunities**

August 2020

Daniel Ritchie, Angel Chang, Manolis Savva  
SIGGRAPH 2020 Birds of a Feather

**Learning 3D Generative Models**

June 2020

Daniel Ritchie, Florian Golemo, Angel Chang, Siddhartha Chaudhuri, Aaron Courville,  
Qixing Huang, Derek Nowrouzezahrai, Pedro O. Pinheiro, Sai Rajeswar, Manolis Savva,  
David Vasquez, Kai Xu, Hao Zhang  
CVPR 2020 Workshop

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|-------------------------------|---|-----------------------------|
|                               | <b>3D Scene Generation</b>  | June 2019                   |
|                               | Angel Chang, Qixing Huang, Daniel Ritchie, Manolis Savva<br>CVPR 2019 Workshop        |                             |
|                               | <b>Learning Generative Models of 3D Structures</b>                                    | May 2019                    |
|                               | Siddhartha Chaudhuri, Daniel Ritchie, Kai Xu, Hao Zhang<br>Eurographics 2019 Tutorial |                             |
| <b>TEACHING</b>               | <b>Instructor</b>   | Fall 2021 – 2025            |
|                               | Brown CSCI 1230: Introduction to Computer Graphics                                    |                             |
|                               | <b>Instructor</b>   | Fall 2018 – 2020            |
|                               | Brown CSCI 1470/2470: Deep Learning   |                             |
|                               | <b>Instructor</b>   | Spring 2018 – 2025          |
|                               | Brown CSCI 2240: Advanced Computer Graphics   |                             |
|                               | <b>Instructor</b>   | Fall 2017                   |
|                               | Brown CSCI 2951-W: Creative Artificial Intelligence for Computer Graphics             |                             |
|                               | <b>Instructor</b>   | Summer 2016                 |
|                               | DARPA Probabilistic Programming for Advanced Machine Learning Summer School           |                             |
|                               | <b>Course Assistant</b>   | Spring 2014                 |
|                               | Stanford CS 348b: Image Synthesis Techniques  |                             |
|                               | <b>Course Assistant</b>   | Fall 2011                   |
|                               | Stanford CS 148: Introduction to Computer Graphics and Imaging                        |                             |
|                               | <b>Graduate Student Instructor</b>  | Fall 2009, Spring 2010      |
|                               | UC Berkeley CS 184: Foundations of Computer Graphics                                  |                             |
|                               | <b>Student Facilitator</b>  | Spring 2009 – Spring 2010   |
|                               | UC Berkeley Undergraduate Graphics Group  |                             |
|                               | <b>Tutor</b>  | Fall 2008                   |
|                               | UC Berkeley Self-Paced Center   |                             |
| <b>RESEARCH<br/>MENTORING</b> | <b>Current Students</b>   |                             |
|                               | Aditya Ganeshan   | Brown CS PhD                |
|                               | Arman Maesumi   | Brown CS PhD                |
|                               | Maxim Gumin   | Brown CS PhD                |
|                               | Yuanbo Li   | Brown CS PhD                |
|                               | Jason Liu   | Brown CS PhD                |
|                               | Ben Ahlbrand  | Brown CS PhD                |
|                               | Xiaoxi Yang   | Brown CS Research Assistant |

|                     |                                    |
|---------------------|------------------------------------|
| Tianxing Ji         | Brown CS ScM (expected 2026)       |
| Chengye Hao         | Brown CS ScM (expected 2026)       |
| Pranav Sankar       | Brown CS ScM (expected 2027)       |
| Henry Yin           | Brown CS ScM (expected 2027)       |
| Do Heon (Bryan) Han | Brown CS Undergrad (expected 2026) |
| Ryan Huang          | Brown CS Undergrad (expected 2026) |
| Nirayka Monga       | Brown CS Undergrad (expected 2026) |
| Tanish Makadia      | Brown CS Undergrad (expected 2026) |
| Yuqiao Guan         | Brown CS Undergrad (expected 2026) |
| Ryan Lee            | Brown CS Undergrad (expected 2026) |

### Alumni

|   |                         |
|---|-------------------------|
| Russell (Kenny) Jones<br><i>Next position: Postdoc, Stanford University</i>         | Brown CS PhD 2025       |
| Xianghao Xu<br><i>Next position: Waymo</i>  | Brown CS PhD 2024       |
| Kai Wang<br><i>Next position: Postdoc, Amazon</i>                                   | Brown CS PhD 2023       |
| Zihan Zhu<br><i>Next position: PhD Student, University of Montreal</i>              | Brown CS ScM 2025       |
| Junyu Liu<br><i>Next position: PhD Student, EPFL</i>                                | Brown CS ScM 2025       |
| Ruiqi (Ray) Xu<br><i>Next position: PhD Student, Purdue University</i>              | Brown CS ScM 2025       |
| Stewart Morris<br><i>Next position: CS curriculum development, VA middle school</i> | Brown CS Undergrad 2025 |
| Zack Amiton<br><i>Next position: Duolingo</i>                                       | Brown CS Undergrad 2025 |
| Jean Yoo<br><i>Next position: Basis AI</i>  | Brown CS Undergrad 2025 |
| Chengfan Li<br><i>Next position: TikTok</i>   | Brown CS ScM 2025       |

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|---|-------------------------------|
| Vivian Lu<br><i>Next position: Bloomberg</i>                              | Brown CS Undergrad + ScM 2025 |
| Krishi Saripalli<br><i>Next position: Bezi</i>                            | Brown CS Undergrad 2024       |
| Dylan Hu<br><i>Next position: Microsoft</i>                               | Brown CS Undergrad 2024       |
| Jay Sarva<br><i>Next position: Databricks</i>                             | Brown CS Undergrad 2024       |
| Sarah Roberts<br><i>Next position: Chewonki Foundation</i>                | Brown CS Undergrad 2024       |
| Anh Truong<br><i>Next position: PhD Student, MIT</i>                      | Brown CS Undergrad 2024       |
| Renhao (Norman) Zhang<br><i>Next position: PhD Student, UMass Amherst</i> | Brown CS ScM 2024             |
| Alex Ding<br><i>Next position: Jane Street</i>                            | Brown CS Undergrad + ScM 2024 |
| Neil Xu<br><i>Next position: Gecko Robotics</i>                           | Brown CS Undergrad 2024       |
| Alex Wang<br><i>Next position: ScM Student, Brown University</i>          | Brown CS Undergrad 2024       |
| Cal Nightingale<br><i>Next position: Gradient Health</i>                  | Brown CS Undergrad 2024       |
| Coco Kaleel<br><i>Next position: Analog Devices</i>                       | Brown CS Undergrad 2024       |
| Chloe Yeh<br><i>Next position: InterSystems</i>                           | Brown CS Undergrad 2024       |
| Yifan Ruan<br><i>Next position: PhD Student, University of Toronto</i>    | Brown CS Undergrad 2023       |
| Xiao (Sean) Zhan<br><i>Next position: PhD Student, MIT</i>                | Brown CS Undergrad 2023       |
| Paul Biberstein<br><i>Next position: PhD Student, UPenn</i>               | Brown CS Undergrad 2023       |
| Adrian Chang<br><i>Next position: Vision Systems, Inc.</i>                | Brown CS Undergrad 2023       |
| David Han<br><i>Next position: Roblox</i>                                 | Brown CS Undergrad 2023       |

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| Alana White<br><i>Next position: Netflix</i>                              | Brown CS Undergrad 2023       |
| Adam Wang<br><i>Next position: Five Rings</i>                             | Brown CS Undergrad 2023       |
| Bryce Blinn<br><i>Next position: PhD Student, USC</i>                     | Brown CS Undergrad + ScM 2022 |
| Yuchen Zhou<br><i>Next position: Amazon</i>                               | Brown CS ScM 2022             |
| Zhouqi Gong<br><i>Next position: Amazon</i>                               | Brown CS ScM 2022             |
| Joshua Pierce<br><i>Next position:</i>                                    | Brown CS ScM 2022             |
| Caleb Trotz<br><i>Next position: Goldman Sachs</i>                        | Brown CS Undergrad 2022       |
| Aalia Habib<br><i>Next position: Adobe</i>                                | Brown CS Undergrad 2022       |
| Vikas Thamizharasan<br><i>Next position: R&amp;D Engineer, Activision</i> | Brown CS ScM 2022             |
| Xiangyu Li<br><i>Next position:</i>                                       | Brown CS ScM 2021             |
| Selena Ling<br><i>Next position: PhD Student, University of Toronto</i>   | Brown CS ScM 2021             |
| David Charatan<br><i>Next position: Common Sense Machines</i>             | Brown CS Undergrad 2021       |
| Andrew Peterson<br><i>Next position: Disney Animation</i>                 | Brown CS Undergrad + ScM 2021 |
| Maggie Wu<br><i>Next position: Microsoft</i>                              | Brown CS Undergrad 2021       |
| Homer Walke<br><i>Next position: PhD Student, UC Berkeley</i>             | Brown CS Undergrad 2021       |
| Theresa Barton<br><i>Next position: The New York Times</i>                | Brown CS ScM 2021             |
| Naveen Srinivasan<br><i>Next position: Amazon Lab126</i>                  | Brown CS Undergrad 2020       |
| Brian Oppenheim<br><i>Next position: Google</i>                           | Brown CS Undergrad 2020       |

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| Brad Guesman<br><i>Next position: NVIDIA</i>  | Brown CS Undergrad 2020       |
| Miles Freeman<br><i>Next position: Winnie</i>   | Brown CS Undergrad 2020       |
| Siqi Wang<br><i>Next position: PhD Student, Boston University</i>                                 | Brown CS ScM 2020             |
| Loudon Cohen<br><i>Next position: NVIDIA</i>  | Brown CS Undergrad + ScM 2020 |
| Purvi Goel<br><i>Next position: PhD Student, Stanford University</i>                              | Brown CS Undergrad + ScM 2020 |
| Natalie Lindsay<br><i>Next position: Apple</i>  | Brown CS Undergrad + ScM 2020 |
| Leon Lei<br><i>Next position: Amazon</i>  | Brown CS Undergrad + ScM 2020 |
| Ellen Jiang<br><i>Next position: Google Brain</i>   | Brown CS Undergrad 2020       |
| Ruolan Tang<br><i>Next position: Two Sigma</i>  | Brown CS ScM 2019             |
| Ben Weissmann<br><i>Next position: Down Dog</i>   | Brown CS Undergrad 2019       |
| Mae Heitmann<br><i>Next position: AirBnB</i>  | Brown CS Undergrad 2019       |
| Montana Fowler<br><i>Next position: PhD Student, UC Santa Cruz</i>                                | Brown CS Undergrad 2019       |
| Yu-An (Andy) Lin<br><i>Next position: Microsoft</i>   | Brown ECE ScM 2018            |
| Yifan Liu<br><i>Next position: Google</i>   | Brown CS ScM 2018             |
| Shreya Shankar<br><i>Next position: Machine Learning Engineer, Viaduct</i>                        | Stanford CS Undergrad 2019    |
| Maxime Voisin<br><i>Next position: Research Assistant, Stanford University</i>                    | Stanford MS&E MS 2018         |
| Anna Thomas<br><i>Next position: Masters Student, University of Cambridge (Churchill Scholar)</i> | Stanford CS Undergrad 2018    |
| Sarah Jobalia<br><i>Next position: Microsoft</i>  | Stanford CS MS 2018           |

Ben Mildenhall  
*Next position: PhD Student, UC Berkeley*

Stanford CS Undergrad 2015

### Visitors

Nicole Ge Visiting Undergraduate Researcher Summer 2025  
*Home institution: Harvey Mudd College*

Aruna Anderson Visiting Undergraduate Researcher Summer 2025  
*Home institution: Loyal Marymount University*

Henro Kriel Visiting PhD Student Nov - Dec 2024  
*Home institution: Inria*

Clara Fee Visiting Undergraduate Researcher Summer 2024  
*Home institution: Bryn Mawr College*

Caitlin Gong Visiting Undergraduate Researcher Summer 2024  
*Home institution: Vassar College*

Rio Aguina-Kang Visiting Undergraduate Researcher Summer 2023  
*Home institution: UCSD*

Imani Finkley Visiting Undergraduate Researcher Summer 2022  
*Home institution: Cornell University*

Hameed Abdul-Rashid Visiting Undergraduate Researcher Summer 2019  
*Home institution: University of Southern Mississippi*

### External Thesis Committees

Wenzhe Peng 2022  
*MIT Department of Architecture*

**FUNDING** **NSF HCC Small #2519772** 10/2025 – 09/2028  
Open-vocabulary Neurosymbolic 3D Models  
Sole PI. \$477,651

**NSF REU Site #2447190** 06/2025 – 05/2028  
Artificial Intelligence for Computational Creativity  
Sole PI. \$364,562

**Adobe Inc.** 2020 – 2025  
Unrestricted Gifts  
Sole PI. \$164,000

**Roblox Corporation** 2024 – 2024  
Unrestricted Gifts  
Sole PI. \$60,000

**Google exploreCSR** 2024 – 2027  
Unrestricted Gift

Co-PI: Malte Schwarzkopf. \$32,000

**NSF CISE-ANR HCC Small #2315354** 10/2023 - 09/2026  
Learning to Translate Freehand Design Drawings into Parametric CAD Programs  
Co-PI: Adrien Bousseau (INRIA). \$599,999

**NSF REU Site #2150184** 03/2022 – 02/2025  
Artificial Intelligence for Computational Creativity  
Sole PI. \$313,000

**Google exploreCSR** 2021 – 2023  
Unrestricted Gift  
Co-PIs: James Tompkin, Jeff Huang, Amy Greenwald. \$18,000

**Autodesk Inc.** 2020 – 2024  
Unrestricted Gifts  
Sole PI. \$170,000

**NSF CCRI Planning #2016532** 10/2020 – 03/2024  
A Community-Standard, Large-Scale Synthetic 3D Scene Dataset for Scene Analysis and Synthesis  
Sole PI. \$50,000

**NSF CAREER #1941808** 04/2020 – 03/2025  
Learning Neurosymbolic 3D Models  
Sole PI. \$549,999

**NSF CHS Small #1907547** 10/2019 – 06/2024  
Learning to Automatically Design Interior Spaces  
Sole PI. \$498,333

**DARPA GAILA HR00111990064** 07/2019 – 12/2020  
Cognitively-Motivated Word Learning in Embodied Virtual Agents  
Co-PIs: Ellie Pavlick, Roman Fieinan, Stefanie Tellex, Carsten Eickhoff. \$954,509

**Brown University OVPR Research Seed Fund Award** 2019  
Building a Large Dataset of Articulated 3D Object Models  
Sole PI. \$42,500

**NSF CRII #1753684** 05/2018 – 04/2021  
Learning Procedural Modeling Programs for Computer Graphics from Examples  
Sole PI. \$175,000

|                                |  |      |
|--------------------------------|--|------|
| <b>AWARDS &amp;<br/>HONORS</b> | Eliot Horowitz Assistant Professorship                     | 2021 |
|                                | NSF CAREER Award   | 2020 |
|                                | Eurographics Best Paper Honorable Mention                  | 2015 |
|                                | Stanford Graduate Fellowship                               | 2010 |
|                                | UC Berkeley EECS Departmental Citation                     | 2010 |
|                                | UC Berkeley Computer Science Highest Achievement Award     | 2010 |
|                                | CRA Outstanding Undergraduate Researcher Honorable Mention | 2010 |
|                                | UC Berkeley Edward Frank Kraft Scholarship                 | 2007 |

**PROFESSIONAL  
SERVICE**



**Program Chair**

3DV: 2026

**Program Committee Member / Area Chair**

SIGGRAPH: 2021, 2022

SIGGRAPH Asia: 2018, 2019, 2023, 2024

SIGGRAPH Asia Courses: 2020

SIGGRAPH Asia Papers Sort Committee: 2025

NeurIPS: 2019

ICLR: 2021, 2023

Eurographics: 2020 – 2024

Eurographics State-of-the-Art Reports: 2025

**Conflict of Interest Coordinator**

SIGGRAPH Asia: 2020

**Conference Proceedings Reviewer**

SIGGRAPH: 2016 – 2025

SIGGRAPH Asia: 2016 – 2024

CVPR: 2019 – 2025

UIST: 2016

NeurIPS: 2016, 2018, 2019

Eurographics: 2017 – 2019

Graphics Interface: 2019

ICCV: 2019, 2021, 2025

ECCV: 2020

ICML: 2018

ICLR: 2018

**Journal Editor**

Computer Graphics Forum (Associate Editor): 2021 – 2025

IEEE TVCG (Associate Editor): 2023 – 2024

**Journal Reviewer**

ACM TOG: 2019, 2022

IEEE TVCG: 2016, 2019, 2021

Computer Graphics Forum: 2017, 2020, 2022

Pattern Recognition: 2019

Computer Aided Design: 2016

Transactions on Games: 2020

IEEE TPAMI: 2022

**Grant Reviewer**

NSF Proposal Reviewer: 2018, 2020, 2021, 2025

**Other Reviews**

SIGGRAPH Thesis Fast Forward: 2024

**UNIVERSITY  
SERVICE**

Sophomore Advising

2022 – 2023

First-Year Advising

2021 – 2022, 2025 – 2026

**DEPARTMENT  
SERVICE**

Faculty Search Chair

2023 – 2024

Diversity &amp; Inclusion Committee Chair

2021 – 2023

|  |                |
|--|----------------|
| Diversity & Inclusion Committee Member | 2021 – Present |
| Undergraduate Concentration Advising   | 2018 – Present |
| PhD Admissions Committee Member        | 2017 – 2024    |

**PATENTS**      **Methods and Apparatus for Comic Creation** (US 20130073952 A1)

|                     |                                   |      |
|---------------------|-----------------------------------|------|
| <b>FILM CREDITS</b> | <b>Day &amp; Night</b>            | 2010 |
|                     | Pixar Animation Studios           |      |
|                     | <i>Shading Technical Director</i> |      |