

Alex Trevithick | Final-year PhD Candidate in Computer Vision

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Summary

I am a final-year PhD candidate at UC San Diego advised by Professor [Ravi Ramamoorthi](#). I'm interested in training and leveraging generative models for computer vision with particular emphasis on 4D reconstruction, real-time inference, and photorealistic generation. I have had the fortune to work at the Max Planck Institute and the University of Oxford, spend 1.5 years at NVIDIA AI, and a year at Google DeepMind. I'm very excited about new opportunities which create real-world impact through generative models.

Education

Ph.D. in Computer Science UC San Diego, La Jolla, CA Advisor: Ravi Ramamoorthi	2021–2025
B.A. in Computer Science and Mathematics, <i>Magna Cum Laude</i> Williams College, Williamstown, MA GPA: 3.94	2017–2021
Williams-Exeter Programme University of Oxford, Oxford, UK GPA: 4.0	2019–2020

Research & Publications

2025	CVPR
SimVS: Simulating World Inconsistencies for Robust View Synthesis Alex Trevithick, Roni Paiss, Philipp Henzler, Dor Verbin, Rundi Wu, Hadi Alzayer, Ruiqi Gao, Ben Poole, Jonathan T. Barron, Aleksander Holynski, Ravi Ramamoorthi, Pratul P. Srinivasan <i>Turn inconsistent captures into consistent multiview images through simulation with video models.</i> Project Page Paper	
2025	CVPR
CAT4D: Create Anything in 4D with Multi-View Video Diffusion Models Rundi Wu, Ruiqi Gao, Ben Poole, Alex Trevithick, Changxi Zheng, Jonathan T. Barron, Aleksander Holynski <i>Sample 4D scenes from text, video, or sparse images.</i> Project Page Paper	
2025	3DV
RealmDreamer: Text-Driven 3D Scene Generation with Inpainting and Depth Diffusion	

Jaidev Shriram*, **Alex Trevithick***, Lingjie Liu, Ravi Ramamoorthi

Generate 3D scenes from text using diffusion-based inpainting and depth cues.

[Project Page](#) | [Paper](#) | [Code](#)

2024

CVPR

What You See Is What You GAN: Rendering Every Pixel for High-Fidelity Geometry in 3D GANs

Alex Trevithick, Matthew Chan, Towaki Takikawa, Umar Iqbal, Shalini De Mello, Manmohan Chandraker, Ravi Ramamoorthi, Koki Nagano

Render every pixel for photorealistic geometry in 3D generative models.

[Project Page](#) | [Paper](#)

2023

SIGGRAPH

Live 3D Portrait: Real-Time Radiance Fields for Single-Image Portrait View Synthesis

Alex Trevithick, Matthew Chan, Michael Stengel, Eric R. Chan, Chao Liu, Zhiding Yu, Sameh Khamis, Manmohan Chandraker, Ravi Ramamoorthi, Koki Nagano

Real-time encoding and view synthesis from a single portrait image.

[Project Page](#) | [Paper](#) | [Video](#)

2023

SIGGRAPH Emerging Technologies

AI-mediated 3D Videoconferencing

Michael Stengel, Koki Nagano, Chao Liu, Matthew Chan, **Alex Trevithick**, Shalini De Mello, Jonghyun Kim, David Luebke, Amrita Mazumdar, Shengze Wang, Mayoore Jaiswal

A real-time demo for immersive 3D videoconferencing built with Live 3D Portrait.

[Project Page](#) | [Paper](#)

2023

ICML

NerfDiff: Single-image View Synthesis with NeRF-guided Distillation from 3D-aware Diffusion

Jiatao Gu, **Alex Trevithick**, Kai-En Lin, Josh Susskind, Christian Theobalt, Lingjie Liu, Ravi Ramamoorthi

Distilling a 3D-aware conditional diffusion model into a triplane NeRF.

[Project Page](#) | [Paper](#)

2023

EGSR

PVP: Personalized Video Prior for Editable Dynamic Portraits using StyleGAN

Kai-En Lin, **Alex Trevithick**, Keli Chang, Michel Sarkis, Mohsen Ghafoorian, Ning Bi, Gerhard Reitmayr, Ravi Ramamoorthi

Leveraging the StyleGAN latent space for multi-view consistent real-time editing.

[Project Page](#) | [Paper](#)

2021

ICCV

GRF: Learning a General Radiance Field for 3D Scene Representation and Rendering

Alex Trevithick, Bo Yang

Per-pixel features improve NeRF and allow it to generalize to new scenes without retraining.

Awards

2022: NSF Graduate Research Fellowship
2022: Honorable Mention for NDSEG Fellowship
2021: Jacobs School of Engineering Fellowship (UC San Diego)
2021: Elected to Phi Beta Kappa and Sigma Xi (Williams College)
2020: Robert G. Wilmers Jr. 1990 Fellowship
2020: Williams College Summer Research Fellowship
2019: John Houghton Harris Memorial Scholarship
2018: Alumni-Sponsored Internship Program Grant
2017: Amherst College Schupf Research Scholarship (\$20,000 nomination)

Research Experience

Google DeepMind <i>Student Researcher</i>	San Francisco, CA <i>Dec 2023 – Dec 2024</i>
NVIDIA Research <i>Research Intern</i>	Santa Clara, CA <i>Jun 2023 – Dec 2023</i>
NVIDIA Research <i>Research Intern</i>	Santa Clara, CA <i>Jun 2022 – May 2023</i>
Max Planck Institute for Informatics <i>Research Intern</i>	Saarbrücken, Germany <i>May – Sep 2021</i>
Williams College <i>Summer Research Fellow</i>	Williamstown, MA <i>2020</i>
University of Oxford <i>Wilmers Fellow</i>	Oxford, UK <i>2020</i>
Washington State University <i>REU Researcher</i>	Pullman, WA <i>2019</i>
Michigan State University <i>High School Honors Science Program</i>	East Lansing, MI <i>2016</i>

Invited Talks

NVIDIA Graphics
December 2022

NVIDIA Graphics
December 2023

Google Labs
May 2023

Annual UCSD Visual Computing Retreat
June 2023

Google 3D GenAI
January 2024

INRIA
February 2024

Teaching Experience

Measure Theory & Hilbert Spaces

Teaching Assistant, Fall 2020

Williams College

Fall 2020

Introduction to Computer Science

Teaching Assistant, Fall 2019

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Fall 2019

Computational Linear Algebra

Teaching Assistant, Fall 2018

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Fall 2018

Reviewing

CVPR (2023, 2024, 2025)

ECCV (2024)

ICCV (2023)

SIGGRAPH Asia (2023, 2024)

SIGGRAPH (2024)

References

Ravi Ramamoorthi

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Koki Nagano

Principal Research Scientist, NVIDIA

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