

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.

Research & Publications

2025

arXiv

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

Turn inconsistent captures into consistent multiview images through simulation with video models.

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

2025

arXiv

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

Sample 4D scenes from text, video, or sparse images.

[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.

[Paper](#) | [Code](#) | [Video](#)

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

Student Researcher

San Francisco, CA

Dec 2023 – Dec 2024

NVIDIA Research

Research Intern

Santa Clara, CA

Jun 2023 – Dec 2023

NVIDIA Research

Research Intern

Santa Clara, CA

Jun 2022 – May 2023

Max Planck Institute for Informatics

Research Intern

Saarbrücken, Germany

May – Sep 2021

Williams College

Summer Research Fellow

Williamstown, MA

2020

University of Oxford

Wilmer's Fellow

Oxford, UK

2020

Washington State University

REU Researcher

Pullman, WA

2019

Michigan State University

High School Honors Science Program

East Lansing, MI

2016

Teaching Experience

Measure Theory & Hilbert Spaces

Teaching Assistant, Fall 2020

Williams College

Fall 2020

Introduction to Computer Science

Teaching Assistant, Fall 2019

Fall 2019

Computational Linear Algebra

Teaching Assistant, Fall 2018

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

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