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, Shalini De Mello, Jonghyun Kim, David Luebke, Amrita Mazumdar, Shengze Wang, Mayoore Jaiswal, **Alex Trevithick**

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 — **San Francisco, CA**
Student Researcher — *Dec 2023 – Dec 2024*

NVIDIA Research — **Santa Clara, CA**
Research Intern — *Jun 2023 – Dec 2023*

NVIDIA Research — **Santa Clara, CA**
Research Intern — *Jun 2022 – May 2023*

Max Planck Institute for Informatics — **Saarbrücken, Germany**
Research Intern — *May – Sep 2021*

Williams College — **Williamstown, MA**
Summer Research Fellow — *2020*

University of Oxford — **Oxford, UK**
Wilmers Fellow — *2020*

Washington State University — **Pullman, WA**
REU Researcher — *2019*

Michigan State University — **East Lansing, MI**
High School Honors Science Program — *2016*

Teaching Experience

Measure Theory & Hilbert Spaces — **Williams College**
Teaching Assistant, Fall 2020 — *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

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