




Daksh K. Shah

3D Reconstruction | Sparse-View Imaging | Neural Rendering | Egocentric Vision






 dakshshah03

 dakshkshah






 <http://dakshshah.com/>

 @torchedvision


Employment History

- Jan 2026 – June 2026  **Software Engineer Intern** Keysight Technologies
- April 2025 – Present  **Research Assistant** BiomedAI Lab — Baskin School of Engineering, UC Santa Cruz; **PI: Razvan Marinescu**
- January 2024 – Present  **Research Assistant** Visualization and Interactive Systems (VIS) Lab — Baskin School of Engineering, UC Santa Cruz; **PI: James Davis**
- January 2024 – December 2024  **Research Assistant** AIEA Lab — Baskin School of Engineering, UC Santa Cruz; **PI: Leilani Gilpin**
- April 2023 – June 2026  **Teaching Assistant** Baskin School of Engineering, UC Santa Cruz

Skills

- ML & 3D Vision  3D Gaussian Splatting, Neural Radiance Fields (NeRFs), Diffusion Models, Vision-Language Models, Pose Estimation, LoRA, Self-supervised Learning
- Languages  Python, C/C++, C#, Go, TypeScript/JavaScript, SQL, Bash
- Vision & Libraries  PyTorch, ONNX, OpenCV, Three.js, WebGL, OpenGL, LlamaIndex
- MLOps & Systems  Docker, Kubernetes, Kubeflow, MLflow, Distributed Systems
- Software Eng.  .NET, Avalonia, WPF, Next/React, RESTful APIs, PostgreSQL, Spring Boot

Education

- 2022 – 2026  **B.S., UC Santa Cruz** Computer Science & Math Theory and Computation
GPA: 3.90
Thesis title: *K-Material SDFs for Neural Attenuation Fields*
Honors: Deans' List (Fall {2022, 2023, 2025}, Winter {2022, 2026}, Spring {2023, 2024, 2025})
Graduate Coursework: Advanced Computer Vision, Statistical Machine Learning, Advanced ML {NeuroSymbolic AI, Differentiable Programming}, Applied Bayesian Statistics

Research Publications

Conference Proceedings

- 1 D. K. Shah, E. Nikolakakis, and R. Marinescu, "K-material SDFs for neural attenuation fields in sparse-view CT," in *Proceedings of the 11th International Workshop on Simulation and Synthesis in Medical Imaging (SASHIMI 2026)*, Targeting Submission for SASHIMI 2026.
- 2 E. Nikolakakis, D. K. Shah, J. Wong, J. Digne, and R. Marinescu, "Renaf: Regularized neural attenuation fields with 3d reconstruction priors for sparse-view ct," Under Review at MICCAI, 2026.

Theses

- 1 D. K. Shah, "K-material SDFs for neural attenuation fields," Bachelor's thesis, University of California, Santa Cruz, 2026.

Technical Reports and Posters

- 1 D. K. Shah and D. J. Louie, *Video super-resolution benchmark: Evaluating spatial fidelity and temporal coherence tradeoffs*, 2025.
- 2 J. W. Morris, V. Shah, A. Besanceny, D. Shah, and L. H. Gilpin, *Slug mobile: Test-bench for rl testing*, 2024. arXiv: 2409.10532 [cs.R0]. [URL: https://arxiv.org/abs/2409.10532](https://arxiv.org/abs/2409.10532).

Work-in-Progress/Planned

- 1 D. K. Shah and J. Davis, "Coverage-aware frame selection: Mitigating attentional bias in egocentric 3d reconstruction via motion statistics," In Preparation for ICCV 2027.

Selected Research, Work, and Projects

- Jan 2026 – Present **Software Engineering Intern (Keysight Technologies)**
- Migrating legacy WPF plugin interfaces to the KS8500B web app using **C#/.NET and Avalonia** to enable cross-platform UI rendering.
 - Implementing high-fidelity data visualization to ensure UI parity between desktop and browser-based test automation tools.
- June 2025 – Present **Volumetric Reconstruction for Sparse-View CBCT (BiomedAI Lab)**
- Formulated **K-Material SDFs** for Neural Attenuation Fields to enable automated multi-surface reconstruction.
 - Developed a differentiable **Soft Selector** and GMM-based priors to eliminate manual hyperparameter tuning in tissue modeling.
 - Evaluated **NeAS** and **ReNAF** architectures on **Kubernetes**, analyzing the impact of physics-informed regularization on high-frequency reconstruction fidelity.
- April 2025 – Present **Egocentric Scene Reconstruction – Meta Project Aria (VIS Lab)**
- Developing an egocentric **Gaussian Splatting** pipeline optimized for rapid viewpoint changes and dynamic illumination in AR.
 - Implementing robust **pose estimation** and **scene graph** architectures to encode hierarchical spatial-semantic relationships for navigation.
- April 2025 – June 2025 **Video Super-Resolution (VSR) Generative Benchmark**
- Benchmarked **GAN** and **Diffusion**-based architectures (StableVSR, ESRGAN, Real-ESRGAN) on the **REDS** dataset for 4x spatial upscaling.
 - Evaluated the trade-off between spatial fidelity and temporal coherence using **LPIPS**, **DISTS**, and **Temporal LPIPS** metrics.
 - Analyzed the impact of **temporal conditioning** and noise modeling on reducing flickering artifacts and improving frame-to-frame stability.
- March 2025 **Distributed Sharded Key-Value Store**
- Engineered a horizontally scalable, sharded key-value storage system in **Go** using custom **RPCs**, implementing **Causal and Eventual Consistency** for distributed synchronization.
 - Architected a **fault-tolerant**, partition-resilient cluster deployed via **Docker** for containerized orchestration and automated health monitoring.