

SIDDHANT RANADE

RESEARCH SCIENTIST

EXPERIENCE

Topaz Labs, *Deep Learning Researcher* Dallas, TX | Jun 2023 – Present

- Developed and launched a high-fidelity video denoising and upscaling feature. (*PyTorch*)
- Built data ingestion and processing pipelines to create a labeled dataset of > 1M high quality video clips for training foundation models for video enhancement. (*Python, Bash*)
- Launched a fast and color-accurate SDR-to-HDR inverse tone-mapping feature. (*PyTorch, C++*)
- Productionized a frame interpolation model, increasing slow-motion by 2×. (*C++*)
- Owned all the inference pipelines for frame interpolation. (*ONNX, TensorRT, CoreML*)
- Contributed fixes to colorspace-correctness of video playback. (*C++, C, FFMpeg*)

Meta, *Research Intern* Remote, USA | Aug 2021 – Mar 2022

- Developed algorithms for creating high-quality, labeled, human-centric 3D scenes using semantically decomposed neural radiance fields. (*Python, PyTorch, OpenCV*)

Meta, *Research Intern* Remote, USA | May 2020 – Aug 2020

- Trained neural networks for human pose estimation in production. (*Python, PyTorch, OpenCV*)
- Diagnosed and resolved bugs in the original implementation, improving precision. (*TensorFlow*)

Amazon Lab126, *Applied Scientist Intern* Sunnyvale, CA | May 2019 – Nov 2019

- Developed algorithms for single-view, unsupervised 3D human pose estimation. (*PyTorch*)
- Demonstrated an 18% improvement over the state-of-the-art.

Adobe Research, *Research Intern* Seattle, WA | May 2017 – Aug 2017

- Published research on material-aware local descriptors for 3D shapes for tasks such as classification and material-aware retrieval using neural networks. (*Python, Caffe*)

EDUCATION

University of Utah, *PhD* in Computing – Graphics Aug 2017 – May 2023

Dissertation: Inferring Shape and Appearance of 3D Scenes – Advances and Applications.

IIT Bombay, *B.Tech.* in Engineering Physics / Computer Science Jul 2013 – May 2017

PATENT

- S. Tripathi, A. Tyagi, A. K. Agrawal, **S. Ranade**, “Three-dimensional pose estimation,” U.S. Patent 11 526 697, 2022.

PUBLICATIONS

- A. Mateus, **S. Ranade**, S. Ramalingam, P. Miraldo, “Fast and accurate 3D registration from line intersections constraints,” *Int. J. Comput. Vis.*, 2023.
- **S. Ranade**, C. Lassner, K. Li, C. Haene, S.-C. Chen, J.-C. Bazin, S. Bouaziz, “SSDNeRF: Semantic Soft Decomposition of Neural Radiance Fields,” *arXiv preprint arXiv:2212.03406*, 2022.
- **S. Ranade**^{*}, X. Yu^{*}, S. Kakkar, P. Miraldo, S. Ramalingam, “Mapping of sparse 3D data using alternating projection,” in *Proc. Asian Conf. Comput. Vis.*, 2020.
- S. Tripathi^{*}, **S. Ranade**^{*}, A. Tyagi, A. Agrawal, “PoseNet3D: Learning temporally consistent 3D human pose via knowledge distillation,” in *Int. Conf. 3D Vis.*, 2020.
- H. Lin, M. Averkiou, E. Kalogerakis, B. Kovacs, **S. Ranade**, V. Kim, S. Chaudhuri, K. Bala, “Learning material-aware local descriptors for 3D shapes,” *Int. Conf. 3D Vis.*, 2018.
- **S. Ranade**, S. Ramalingam, “Novel single view constraints for Manhattan 3D line reconstruction,” *Int. Conf. 3D Vis.*, 2018.

CONTACT

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SERVICE AND HONORS

Reviewer at:

- Int. Conf. 3D Vis.: 2021, 2022, 2024
- Indian Conf. Comput. Vis. Graph. Image Process.: 2018, 2021, 2022
- AAAI Conf. Artif. Intell.: 2023
- IEEE Int. Conf. Robot. Automat.: 2023

Teaching Experience:

- Teaching mentorship, U. Utah: Computer Graphics (Fall 2018), Interactive Graphics (Spring 2020)
- Teaching associate for seven online sessions of Signals & Systems, IITB (Summer 2014 – Spring 2017)

Department Fellowship 2017
School of Computing, U. Utah

Undergraduate Research Award 2016
IIT Bombay

KVPY Fellowship 2013
DST, Govt. of India

TECHNICAL SKILLS

Programming

- **Languages:** Python, C++, C, MATLAB, Bash, R
- **Deep learning:** PyTorch, TensorFlow, Caffe, ONNX, TensorRT, CoreML
- **Math:** NumPy, Eigen, CUDA, Gurobi
- **Graphics and vision:** OpenGL, Vulkan, OpenCV, FFMpeg

Other

- Expertise in color models, color spaces, transfer functions.
- **Video editing:** Adobe Premiere, DaVinci Resolve, VapourSynth
- **General-purpose tools:** L^AT_EX, Excel