

SARTHAK VORA

Los Angeles, CA 90024 | sarthakvora@g.ucla.edu | +1 (424) 270-5612

EDUCATION

University of California, Los Angeles (UCLA)

Master of Science in Electrical and Computer Engineering

Expected Date: March 2025

GPA 3.95/4.0

Indian Institute of Technology (IIT) Madras, Chennai, India

Bachelor of Technology in Electrical Engineering

June 2023

CGPA 8.98/10

SKILLS

- Programming Languages - Python, C, Linux, MATLAB, R
- Frameworks – PyTorch, TensorFlow, OpenCV, Numpy, Pandas, Scikit-Learn, Scipy, Matplotlib, Git
- Other skills – Critical-Thinking, Problem-Solving, Collaborative, Teamwork

PROFESSIONAL EXPERIENCE

Samsung Research America (SRA), Mountain View, California

June 2024 – Present

Computer Vision Intern, Immersive Experience (IMEX) Lab

- Accelerated an Image Enhancement pipeline by 3-4x (MAC) using a Group-level Model Pruning mechanism.
- Engineered a Fast Image Denoiser by compressing the layers in *UFormer*, reducing device latency to ~10 ms.
- Optimized latency bottleneck Attention operations in Transformer Blocks to create *Efficient Mobile Uformer*.

Resilience Business Grids (RBG.AI), Coimbatore, India

June 2023 – August 2023

Artificial Intelligence Intern

- Integrated *Segment-Anything (SAM)* with *SegFormer* model for improved Floorplan Image segmentation.
- Utilized OpenCV's contour detection method to transform segments within the semantic map into polygons.
- Crafted a 3D model of the FloorPlan Image in Blender by extruding walls and objects from 2D polygons.

Vision and AI Lab (VAL), Indian Institute of Science (IISc) Bangalore, India

June 2022 – March 2023

Research Intern – Computational and Data Science (CDS) Department

- Modelled the latent space of *StyleGAN2* with a Denoising Diffusion Model to generate attribute variations.
- Generated a dataset of attribute edit directions by encoding synthetic image pairs into the *W+* latent space.
- Improved FID metric by 3.7 units on average across hairstyle, eyeglass, and smile attributes in *FFHQ* dataset.

PUBLICATIONS

- "Exploring Attribute Variations in Style-based GANs using Diffusion Models", *NeurIPS 2023 Diffusion Workshop Proceedings, NeurIPS 2023*
- "Attribute Diffusion: Diffusion Driven Diverse Attribute Exploration in GANs", *In Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision, WACV 2025*
- "3D-ADAP: Advancing Object Detection through 3D-Aware Placement", *International Conference on Learning Representations, ICLR 2025 (under review)*

PROJECTS

Road Scene Completion with Geometry-Aware 3D Vehicle Placement

Vision and AI Lab (VAL), Indian Institute of Science (IISc) Bangalore, India

- Collaborated with two researchers to design a VAE-based placement module for dense 3D bounding boxes.
- Designed an augmentation strategy for localizing plausible locations leveraged as sparse input distribution.
- Showcased 22.6% improvement in Average Precision (AP₄₀) metric on *KITTI3D* Object Detection benchmark.

Learning Projections from Single Photon Cameras (SPC) for Stereo Depth Estimation

Undergraduate Thesis, Guided by Prof. Kaushik Mitra (IIT Madras) and Prof. Mohit Gupta (UW Madison)

- Formulated a projection method for estimating depth using deep stereo networks with SPC photon cube.
- Incorporated exposure bracketing into *ACVNet* by selectively using multiple exposures for depth prediction.
- Reduced D1 error by nearly 2% with learned-mask aided video compressive projection over multi-exposure.

EXTRACURRICULAR ACTIVITIES

- Acting as a Reviewer for the International Conference on Learning Representations (ICLR) 2025.
- Serving as a Teaching Assistant in Fall 2024 for the course LS30A: Mathematics for Life Scientists at UCLA.
- Co-Head of a team of 5 members at The Fifth Estate 2021-22, Official Student News Body of IIT Madras.