AMAN AGARWAL

Providence, RI • amanag@brown.edu • (401) 346-7274 • linkedin.com/in/aman190202 • github.com/aman190202

EDUCATION

Brown University | Master of Science in Computer Science | *Advisor: Dr. James Tompkin* — Providence, RI
GPA: 4.0/4.0; Relevant Coursework: 3D Vision and Machine Learning, Computer Graphics — Sep 2024 – May 2026

SRM University | Bachelor of Technology in Computer Science & Engineering — Tamil Nadu, India
CGPA: 9.31/10.0; Academic Scholarship 2020-2021 — Sept 2020 – May 2024

TECHNICAL SKILLS

Programming Languages: C, C++, Python3, Bash, JavaScript, CUDA
ML Frameworks: PyTorch, TensorFlow, JAX, MLX, OpenCV, Scikit-learn, Scikit-image,
Interests: Computer Vision, Neural Radiance Fields, Gaussian Splatting, Volumetric rendering, Path tracing

PROFESSIONAL EXPERIENCE

Coolant Climate Inc | 3D Foundational Model Research Intern — San Francisco, CA | May 2025 – Present

- Adapted and trained a 3D foundation model end-to-end for drone captured forest plot by building a viewpoint aware clustering pipeline, partitioning 100k images into 64-frames plot specific batches, each compliant with model's memory window
- Integrating geospatial metadata into VGGT and fine-tuning it to improve performance on forests data to derive scene level analytics.

Indian Institute of Science | Computer Vision Intern — Bangalore, India | Jan 2024 – May 2024

- Optimized machine learning pipelines to function on low-quality input images by incorporating monocular depth maps as additional supervision which resulted in improved image quality, as measured by metrics such as SSIM and PSNR, by up to 15%.
- Conducted over five ablation studies on ongoing research to segment crucial modules in the pipeline and focus on the most relevant ones, significantly enhanced the overall quality of the research and accelerated the overall process.

Stanford University | Computer Vision Research Intern — Stanford, CA | Oct 2023 – Jan 2024

- Replaced traditional pose estimation methods with Apple's advanced camera hardware for pose computation, integrating it into the 3D reconstruction pipeline and reducing total pipeline time by 40%.
- Introduced and applied dense sampling techniques in the 3D reconstruction pipeline, significantly improving reconstruction quality and reducing errors by nearly 90%.

MACHINE LEARNING, VISION & GRAPHICS PROJECTS

Monocular Dynamic Language Gaussian Splatting | *PyTorch, Python3* — May 2025

- Conducted research on how semantic embeddings can be used to render monocular dynamic scenes using Gaussian Splatting
- Achieved improvements in visual quality and rendering speed of the scene while maintaining visual metrics.

Ray Marcher for Explosions | *C++, CUDA* — May 2025

- Developed a ray marcher from ground up in CUDA to render explosions with millions of lights efficiently

Path Tracing | *C++* — Feb 2025

- Developed a path tracer from ground up using first principles, purely in C++ and incorporated Monte-Carlo integration & Russian-roulette to create realistic renders including soft-shadows and color bleeding in the scene.

LEADERSHIP EXPERIENCE

Next Tech Lab | Head of AI/ML Operations — Tamil Nadu, India | May 2022 – May 2024

- Organized over 20+ talks, 5 hackathons, and 3 research seminars, fostering a vibrant research culture.
- Recruited & led a team of over 50+ undergraduate researchers over 2 years, supervising 20+ projects