AMAN AGARWAL

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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 Vision Research Intern — San Francisco, CA | May 2025 – Present

- **Contributed to field operations** for 3 forest mapping sites (150+ acres total), assisting with LiDAR drone flights and developing geospatial data processing scripts that transform USGS DTM data from lat/lon to metric coordinates for SfM performance validation
- **Architected training pipelines for 3 foundational models** (LongLRM, VGGT, Unsupervised MVS) on multi-TB custom forest datasets, customizing VGGT with FiLM layers to integrate drone metadata (GPS, altitude, orientation) for improved spatial understanding
- **Optimized production I/O systems**, reducing point cloud processing time from 3 minutes to 1 second (180x improvement) and redesigned data structures for byte-indexed retrieval, significantly reducing GPU rental costs
- **Developed production-grade testing and validation scripts** directly integrated into company pipeline, enabling automated sanity checks and quality assurance for forest plot analysis workflows

Indian Institute of Science | 3D Vision Research 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.

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
- Recruited & led a team of over 50+ undergraduate researchers over 2 years, supervising 20+ projects