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: Python, C, C++, Bash, JavaScript
Machine Learning Frameworks: PyTorch, TensorFlow, JAX, MLX
Interests: Neural Radiance Fields (NeRFs), Gaussian Splatting, Volumetric rendering, Path tracing

PROFESSIONAL EXPERIENCE

Brown Visual Computing | Graduate Researcher — Providence, RI | Jan 2025 – Present

- Assisted in developing benchmark for novel view synthesis of moving scenes by debugging CUDA pipelines and solving an array of installation issues

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

- Optimized novel view synthesis methods for sparse low quality image datasets by integrating monocular depth priors & other physics-based constraints, improving SSIM & PSNR metrics by 15%.
- Conducted 3+ ablation studies, streamlining research workflows & reducing publication timelines by 3 weeks.
- Delivered benchmark analyses for 5+ research papers, accelerating identification of key improvements.

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

Geometry Processing for Mesh | *C++* — Mar 2025

- Implemented mesh-processing modules such as sub-division, quadratic-error simplification and Bilateral Mesh denoising in *O(n)* time

Path Tracing | *C++* — Feb 2025

- Developed a real-time path tracer using Monte-Carlo integration & Russian-roulette, achieving **5x faster** rendering speeds compared to baseline CPU implementations.

Courses - LLM | *Python3, OpenAI API, Flask* — Jan 2025

- Designed a smart chatbot powered by using a Retrieval-Augmented Generation framework to assist college students in selecting courses tailored to their career interests and prior knowledge, reducing course search time from hours to minutes.

Volumetric Rendering for Clouds | *C++, OpenMP* — Dec 2024

- Engineered a ray-marching algorithm in C++ to render volumetric cloud data, delivering realistic real-time outputs with a 200% improvement in rendering speed using OpenMP.

Neural Radiance Fields | *Python3, CUDA* — Dec 2024

- Built a Neural Radiance Field pipeline from scratch to synthesize novel 3D views, achieving state-of-the-art accuracy on synthetic benchmarks.

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