AMAN AGARWAL

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EDUCATION

Brown University, *M.Sc. Computer Science,* GPA : 4.0/4.0 — Providence, RI | **Sep 2024 – May 2026**
Relevant Courses**:** Computer Graphics, 3D Vision & Deep Learning

SRM University, *B.Tech. Computer Science,* GPA: 3.98/4.0 — Tamil Nadu, India | **Sep 2020 – May 2024**
Scholarship for Academic Excellence ; Top 1 percentile of cohort (2021)

SKILLS & INTERESTS

Research: Computer Vision, Machine Learning, Neural Radiance Fields, Gaussian Splatting, Inverse Rendering
Technical : Python3, C++, Bash, JavaScript
Libraries & Frameworks: PyTorch, TensorFlow, JAX, MLX, PyTorch3D, OpenGL, WebGL

RESEARCH EXPERIENCE

Indian Institute of Science, *3D Vision & Deep Learning Intern* — Bangalore, India | **Jan 2024 – May 2024**

- Optimized a Gaussian Splatting model on sparse images by using monocular depth as priors, thus achieving 15% gains on PSNR and other metrics
- Conducted 3+ ablation studies, streamlining research workflow & reducing paper publication timeline by 3 weeks
- Reproduced and delivered benchmark analysis of over 5 different papers, highlighting core sections to focus on

Stanford University, *3D Vision & Deep Learning Intern* — Stanford, CA | **Oct 2023 – Jan 2024**

- Integrated Apple's ARKit pipeline that estimates camera poses with Zip-NeRF pipeline, replacing the traditional toolkit COLMAP, thus saving up to 20% time in overall 3D Reconstruction process
- Enhanced Neural Radiance Fields methods by introducing dense-sampling techniques, effectively eliminating floater artifacts and achieving a 100% reduction in error rate

LEADERSHIP EXPERIENCE

Next Tech Lab, *Head of AI Operations and Research* — Tamil Nadu, India | **Sep 2022 – May 2024**

- Recruited a team of over 50+ undergrad researchers in a span of over 2 years, guiding them to conduct novel research
- Hosted over 20+ talks, 5 hackathons and 3 research seminars, contributing significantly to the research culture
- Aided over 10+ students in securing research and industry internships, providing guidance throughout recruitment process

VISION, GRAPHICS AND ML PROJECTS

Volumetric Rendering for Clouds and Procedural Terrain, *Computer Graphics @ Brown* — Dec 2024

- Designed and implemented a ray-marcher in C++ to render volumetric data, achieving realistic real-time outputs by parallelizing operations across CPU cores with OpenMP, resulting in a 200% performance improvement.
- Utilized fractal noise to simulate volumetric clouds, creating highly realistic cloud renderings.
- Integrated multiple light sources and programmed their interactions to enable accurate light attenuation and realistic light-cloud interaction. [GitHub]

Neural Radiance Fields, *Computer Vision @ Brown* — Dec 2024

- Implemented a machine learning pipeline to predict the color and density of a point in 3D Space to generate novel views, given multiple input views of the scene [GitHub]

AWARDS & ACHIEVEMENTS

- Selected as one of the top undergraduate ML researchers in India to attend **Amazon ML Summer School** (2022)
- Won MLH's SharkHacks3 for creating a Twilio based application that created a network of truck drivers to facilitate Emergency response (2021)