AMAN AGARWAL

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EDUCATION

Brown University | Master of Science in Computer Science — 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

PROFESSIONAL EXPERIENCE

Indian Institute of Science & Technology — Bangalore, India
Computer Vision & AI Intern — 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 — Stanford, CA
Computer Vision & Machine Learning Engineer Intern — 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%.

LEADERSHIP EXPERIENCE

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

- Recruited & led a team of over 50+ undergraduate researchers over 2 years.
- Organized over 20+ talks, 5 hackathons, and 3 research seminars, fostering a vibrant research culture.
- Mentored 10+ students, assisting them in securing research and industry internships by providing recruitment guidance.

ML, VISION & GRAPHICS PROJECTS

Chat-GPT from Scratch | *https://github.com/aman190202/llm-scratch* — Jan 2025

- Developed a Large Language Model (LLM) based on GPT-3's architecture from first principles, including transformer blocks, attention mechanisms, and token embeddings.

Volumetric Rendering for Clouds | *https://github.com/aman190202/Clouds* — 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.
- Integrated multi-light source simulation, enabling accurate light attenuation and realistic interactions with cloud volumes, enhancing visual fidelity by 50%.

Neural Radiance Fields | *https://github.com/aman190202/small_NeRF* — Dec 2024

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

SKILLS

- **Languages**: Python3, C, C++, JavaScript
- **Libraries & Frameworks**: PyTorch, TensorFlow, JAX, MLX, PyTorch3D, Keras
- **Interests :** Neural Radiance Fields, Gaussian Splatting, Large Language Models, Transformers, Multimodal