Amit Verma

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Summary

Computer Science undergraduate specializing in Machine Learning, Deep Learning, and Computer Vision. Experienced with research projects and practical applications in image processing and pattern recognition. Skilled in back-end and full-stack development with a strong problem-solving mindset.

Technical Skills

Programming Languages:	Python, C++, JavaScript
Tools / IDEs:	Qt Designer, Tkinter, MATLAB
Concepts:	Machine Learning, Deep Learning, Computer Vision, Image Processing, Pattern Recognition
Languages:	English, Hindi, Bengali

Education

B.Tech in Computer Science and Business Systems *Expected Apr 2026*
Techno India University, Kolkata
CGPA: 8.0 / 10.0

Experience

Software Intern Feb 2025 – May 2025
DRDO Project Executive Lab, SSPL Delhi

- Developed and integrated GUI components for a thermal sensor application using PyQt and OpenCV, incorporating video feed and controls.
- Implemented simulation modules along with deep learning-based denoising models to enhance thermal image clarity.
- Applied multiple video filters and upscaling techniques to convert low-bit thermal footage to higher-bit representations for improved visibility.
- Engineered missile tracking functionality using computer vision and multithreaded processing to ensure real-time performance and responsiveness.
- Collaborated with cross-functional teams to ensure alignment with project specifications and deadlines.
- Tested and debugged software modules, significantly improving system reliability and robustness under simulated battlefield conditions.

Research Projects

AdaptiveSpatialNorm Feb 2025 – Present

- Developing an adaptive spatial normalization method to dynamically normalize features in image data, aiming to improve robustness and accuracy in deep learning models.

- Currently under experimentation with custom CNN architectures on noisy and non-uniform datasets.

Normalization Techniques Comparison Mar 2025

- Conducted a comparative study of traditional and modern de-noising techniques for image enhancement.
- Results accepted for presentation at the International Conference on Smart Systems and Artificial Intelligence (ICSSAI 2025).

Projects

- **Snake Game** — Created a pathfinding game using HTML, CSS, and JavaScript. [Live Demo]
- **Gesture-based Cursor Control** — Built a real-time hand tracking system using OpenCV to allow physically disabled users to control the cursor using hand and finger gestures. [GitHub Repo]
- **Brain Tumor Detection with GradCAM** — Developed a Tkinter desktop app using PyTorch and DenseNet121 to classify MRI brain scans (Glioma, Meningioma, Pituitary, No Tumor) with GradCAM/GradCAM++ visualizations. [GitHub Repo]
- **SSPL Image/Video Filter App** — Built a PyQt application integrating OpenCV, MATLAB, and PyTorch for video enhancement, deep denoising, and pattern recognition workflows.

Mini Projects

- **Sorting Algorithm Visualizer** — Animated multiple sorting algorithms using Tkinter and Streamlit for educational demonstration. [Live Demo]
- **Point Rotation Visualizer** — Interactive live rotation of points using trigonometric calculations (Tkinter). [GitHub Repo]