DEV RISHI VERMA

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EDUCATION

Bachelor of technology, JK Lakshmipat University   *Expected:2026*

Relevant Coursework: Linear Algebra, Statistics, Calculus, Algorithms, Artificial Intelligence, Machine Learning (Stanford), Deep Learning (IIT Madras top 5% rank All India out of 7000 students), Independent Study on Quantum Algorithms.

CGPA: 8.7 Dean's List (Based on academic excellence)

Quantum Computing Summer School 2024

Relevant Coursework: Quantum Circuit Design, Noise Induction, Error Correction.

Grade: 100/100

EXPERIENCE

Research Intern   Jan 2025 – Present
Malaviya National Institute of Technology (MNIT)   *Jaipur, IN*

- As a Research Intern at the Vision Analytics and Pattern Recognition (VAPR) Lab, MNIT, under Prof. Deepak Rajan Nayak, I am working on deep learning approaches for automated diabetic retinopathy grading using fundus images. Exploring attention-based models, contrastive learning, few shot and zero shot learning algorithms to handle unbalanced classes.

Teaching Assistant   Aug 2024 – Present
JK Lakshmipat University   *Jaipur, IN*

- As a Machine Learning TA, I assist sophomores with coding assignments, clarify concepts, troubleshoot issues, and collaborate with professors to enhance course materials.   (Jan'25-Present)

- As a Teaching Assistant for Data Structures and Algorithms, I support sophomore students during lab hours by solving doubts, clarifying concepts, and providing hands-on coding guidance. I also mentor them on broader computer science topics and offer support. My role involves collaborating with professors to enhance course materials and ensure student success. (Aug'24-Dec'24)

Research Intern   June 2024 – Aug 2024
QWORLD   *Remote*

- Under the guidance of Professor Jarek Duda and Dr. Pawel Gora, I focused on designing circuits for quantum algorithms using CPT symmetry in 2WQC, aiming to reduce time complexity and improve noise resilience. I presented this work at the Hypercomplex seminar in Poland, and, because of my contributions, I continue to work with them as a member of their 2WQC XPRIZE team. (https://arxiv.org/abs/2406.09450)

Intern   May 2024 - Jul 2024
Defense Research & Development Organization (DRDO)   *Dehradun, IN*

- Worked under the guidance of scientists at the Defense Electronics Application Lab (DEAL) of DRDO, developing advanced image fusion algorithms to enhance remote sensing data using techniques such as PAN sharpening and Principal Component Analysis (PCA).

PROJECTS

- **Grover's Algorithm for crop monitoring:** Implementing Grover's Algorithm for crop monitoring using AWS Bracket. Currently independent research work (Work in progress).

- **Multi-Class Abnormality classification using VCE :** Worked on utilizing vision transformers to detect over 10 distinct abnormality classes in VCE frames for the CVIP Capsule Vision Challenge'24 in which our team was ranked **7th globally**. (https://arxiv.org/abs/2410.19973)

- **Real Time accident detection :** Developed a real-time accident detection system leveraging CCTV footage analysis on edge devices like Jetson Nano and NodeMCU, with automated alerts sent to authorities via webserver upon accident detection.

- **Lie Detection model:** Developed an advanced lie detection model by integrating computer vision, NLP and voice processing on a multimodal dataset to improve law enforcement investigation methods.

- **Tennis Video Analyzer:** Designed a sports video analytics system for tennis utilizing YOLO and OpenCV, enabling accurate ball tracking and player identification for enhanced performance analysis.

SKILLS

- **Quantum Computing:** Experienced with Qiskit, PennyLane, IBM Quantum Circuit Composer, and AWS Braket. Knowledge of quantum circuit design, simulation, and optimization.
- **Deep Learning:** Python, C++, PyTorch, Keras, NumPy, Pandas, OpenCV, CNNs, RNNs, LSTMs, Transformers, and tasks in computer vision and NLP.
- **Soft Skills:** Research Writing, Problem-solving, Critical thinking, public speaking.

EXTRA-CURRICULAR & LEADERSHIP ACTIVITIES

- Vice President of College Coding club, Host and organizer of various events and seminars.