

Charmi Padh

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EDUCATION

- **LDRP Institute Of Technology and Research**
Bachelor of Engineering in Computer Engineering

2023 – 2027

Gandhinagar, Gujarat

SKILLS

- **Languages:** C | C++ | HTML5 | CSS | Python
- **Framework/Libraries:** Flask | Django | Tailwind CSS | Pandas | Numpy | Tensorflow | Keras | OpenCV | FastAPI
- **Database:** MySQL | PostgreSQL
- **Version Control and Tools :** Git | Github | PowerBi

COURSEWORK

- Data Structures and Algorithms | Operating Systems | OOP | DBMS | Computer Networks

WORK EXPERIENCE

• Reliance Industries Limited

14th May 2025 – 14th Jun 2025



➤ Role: AI/ML Intern

- Developed a gasifier refractory lifespan prediction system by integrating and preprocessing IP21 and LIMS datasets to analyze degradation patterns and estimate the remaining useful life of refractory bricks.
- Developed advanced CNN-LSTM models with feature/time attention to capture refractory wear patterns and appliedanalyze degradation patterns and estimate the remaining useful life of refractory bricks.

PUBLICATION

• TrafficEye : Intelligent Traffic Optimization using Deep Learning Approach



➤ Published in IEEE International Conference on Artificial Intelligence and Machine Vision (AIMV 2025)

- Developed an AI-driven traffic optimization system using YOLOv5s on the IITM-HeTra dataset, achieving 71% accuracy with 1.4 ms inference, outperforming YOLOv4, YOLOv7, and YOLOv8 in detection efficiency
- Designed and optimized the deep-learning pipeline for adaptive signal control, contributing to model development, experimentation, and validation, which led to a successful IEEE AIMV 2025 publication.

• Research Book Chapter

Accepted

- Co-authored a Springer chapter in Studies in Computational Intelligence titled “Quantum Simulation Tools,” providing a comparative analysis of leading platforms including Qiskit, Azure Quantum, and Cirq.
- Evaluated major quantum simulation frameworks by assessing architectures, performance, and limitations, and highlighted key research challenges.

PROJECTS

• Prompt-Injection-Prevention

‣ *Python, pytorch, ViT*



- Developed a hybrid AI safety system using rule-based filters and a ViT classifier to detect unsafe prompts, achieving 98.32% accuracy.
- Trained and optimized a Vision Transformer (ViT) hybrid model on labeled prompt datasets to identify harmful patterns and enhance LLM safety with high reliability.

• SunAdapt

‣ *MATLAB's surf, scatter3, patch*



- Developed shading analysis and tilt-optimization algorithms in MATLAB using real terrain and irradiance data (NASA SRTM, NSRDB) for accurate solar energy prediction.
- Conducted data analysis and integrated models for dual-mode (urban + agrivoltaic) solar deployment, enhancing a unified tool for efficient and policy-aligned solar planning.

LEADERSHIP EXPERIENCE

Team Leader – SIH 2024 (Smart India Hackathon)

LDRP Institute of Technology and Research

- Led a 6-member team in Smart India Hackathon 2024 to develop an AI/ML-based FaceSwap deepfake detection system for images and videos, managing task delegation, presentations, and technical execution to ensure timely project delivery.
- Transitioned the project into a research study, enhancing model accuracy and documenting results for academic publication.

VOLUNTEER EXPERIENCE

Digital & Design Committee Member

Aug 2024 – Jan 2025



IEEE LDRP-ITR Student Branch

- Created digital and print assets for IEEE events using Canva, Adobe Illustrator, and Figma, enhancing event visibility and student engagement through creative design thinking.

ACHIEVEMENTS

• Research Grant



- **Research Project :** "SecurePark — The Real Edge AI, Vision and IOT based campus security and Parking ecosystem for KSV" ; funded with a research grant of Rs. 69,017/- by MMPSRPC, KSV.

• Conference Grant



- **Research Paper :** "TrafficEye: Intelligent Traffic Optimization Using Deep Learning Approach" Received a conference grant of Rs. 2,500/- from MMPSRPC, KSV.

CERTIFICATIONS

• NPTEL Data Analysis & Algorithms (Elite)



- Conference Paper Presentation at 2nd IEEE International conference on Artificial Intelligence and Machine Vision 2025

