

Mervin Mandanna

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EDUCATION

Dayananda Sagar College of Engineering

Bachelor of Engineering in Computer Science (Expected May 2027)

Bangalore, India

CGPA: 8.47

TECHNICAL SKILLS

Programming: Python, C++, Go, JavaScript, TypeScript

Machine Learning: PyTorch, TensorFlow, Scikit-learn, CNNs, Model Training, Feature Engineering

Computer Vision: OpenCV, scikit-image, Image Processing, Image Segmentation, Feature Matching, Homography Estimation, Multi-view Geometry

Backend: FastAPI, Flask, Node.js, REST APIs

Databases: PostgreSQL, MongoDB, Firebase

Security: Androguard, DroidBox, Cuckoo Sandbox, Static & Dynamic Malware Analysis

Tools: Git, Docker, Linux, AWS, COLMAP, Hugin, LabelImg, NumPy, pandas, Matplotlib

EXPERIENCE

Patil I-Labs, Patil Rail Infrastructure Pvt. Ltd

January 2026 – Present

Intern — Scientist

Bangalore, India

- Developing **computer vision and deep learning solutions** for **Machine Vision Inspection Systems (MVIS)** to automate railway wheel inspection and defect detection.
- Designed preprocessing pipelines for **line-scan wheel imagery**, including geometric correction, wheel boundary extraction, and image normalization for downstream analysis.
- Built synthetic data generation and segmentation workflows using **OpenCV** and **PyTorch**, improving model development and evaluation for real-world deployment.

Indian Institute of Technology (IIT) Roorkee

September 2025 – November 2025

Research Intern — Android Malware Detection

- Researched **Android malware detection** using **ML/DL** via static, dynamic, and hybrid analysis.
- Built **feature extraction pipelines** with **Androguard**, **DroidBox**, and **Cuckoo Sandbox**; trained **SVM**, **RF**, **CNN** models.
- Co-authored a paper on a **hybrid malware detection framework** advancing ML/DL approaches.

Win Research Center

February 2025 – August 2025

Frontend Developer

Bangalore, India

- Built and maintained frontend features using **React.js**, **Next.js**, and **Tailwind CSS**.
- Collaborated with cross-functional teams to deliver **interactive dashboards** and improve UX.
- Enhanced performance by **optimizing state management and reducing load times by 30%**.

PROJECTS

KMRL | *Next.js, FastAPI, Reinforcement Learning, PyTorch, Gymnasium, pandas, NumPy* | **GitHub**

August 2025

- Designed a **multi-objective optimization system** evaluating 25 trainsets using operational and certification parameters.
- Applied **reinforcement learning** to determine train serviceability and automate selection of 13 active units.
- Built full-stack architecture with **FastAPI backend** and **Next.js frontend** for scalable decision analysis.

Mimiker AI | *Next.js, Flask, MongoDB, Gemini AI, Playwright* | **GitHub**

September 2025

- Developed an **AI-powered browser automation platform** with record-and-replay workflow generation.
- Implemented **adaptive automation** that updates workflows when UI structure changes.
- Deployed reusable cloud workflows improving task efficiency by **70%**.

ACHIEVEMENTS

Secretary: Leading ByteXync, the official technical club of our institution

Commit and Conquer: Runner-up in the Open Source Contribution Hackathon

Infrentia: Secured 4th place in the hackathon conducted by PES University

BotCraft: Finished 3rd in the Discord Bot Development Competition

Cipher Chase: Placed 16th overall in the CTF organized by IIITB

CodeChef: Rated 1321 on the Competitive Coding Platform CodeChef