Rohan Lal Das

Electrical Engineer | Machine Learning & IoT

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Summary

Electrical Engineering graduate with hands-on expertise in MATLAB modeling and simulation, Proteus-based circuit design and the development of intelligent systems using machine learning and IoT. Experience in integrating hardware and software for real-time, data-driven applications with a strong focus on smart automation and practical engineering solutions.

Skills

Electrical Modeling: MATLAB, Circuit Design and Simulation using Proteus
Machine Learning: Computer Vision, YOLO, Algorithm Development using MATLAB and Python
IoT & Embedded Systems: Arduino, ESP32, Sensor Interfacing, IoT-Based Monitoring and Automation Systems
Programming & Development Tools: Python, MATLAB, Google Colab, Git Version Control

Experience

Machine Learning Intern **May 2025 – Jul 2025**
at NIT, Rourkela, Odisha (On-site) *Tools Used: MATLAB,Simulink and Google Colab*

- **Developed a YOLOv4-based insulator defect detection system in MATLAB** for automated condition monitoring and fault detection. Built and preprocessed a 3,000-image dataset using segmentation and augmentation, achieving **82.6%** detection accuracy and **78.4%** mAP.
- Worked under the mentorship of two research scholars, gaining hands-on exposure to computer vision workflows, and designed the solution for future real-time deployment on drone-based camera systems integrated with Raspberry Pi.

Student Trainee **May 2024 – Jun 2024**
at SAIL, RSP, Odisha (Hybrid) *Tools Used: ZOOM for meeting*

- Completed a 1-month industrial training at a silicon steel manufacturing plant, gaining hands-on exposure to material processing, quality assurance, and production workflows across multiple operational stages. Collaborated closely with mentors, engineers, and cross-functional teams to understand large-scale manufacturing processes.

Projects

Automatic Car Parking System – ***Arduino, C++***

- Automated real-time parking slot monitoring using Arduino, IR sensors, servo motors, and display.
- Guided vehicle positioning for smart parking in malls, offices, and garages.

Smart Hybrid AC–DC Power Supply With Bidirectional Power Flow & Control – ***ESP32, Firebase***

- Designed a Bidirectional AC–DC power system for efficient energy exchange.
- Implemented voltage regulation, load management, and protection using embedded controllers.
- Tested the system for renewable energy integration, smart grids, and industrial applications.

Awards & Certifications

- **MATLAB Certification (2024 & 25):** Completed fundamentals of MATLAB library and editor through NIELIT.
- **1st place in Interdepartmental Project Exhibition – 2025:** Recognized for team collaboration and problem-solving in developing a Smart Hybrid AC–DC Power Supply system.

Education

Bachelor of Technology in Electrical Engineering **Nov 2022 – Jun 2026**
Biju Patnaik University of Technology, Rourkela, Odisha *CGPA: 8.41 / 10*

Higher Secondary Science **Apr 2020 – Jul 2022**
Ispat Vidya Mandir Higher Secondary School, Sector 19, Rourkela, Odisha *Percentage – 76%*