

RAJU BAHARDAR

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PROFESSIONAL SUMMARY

Final-year Electrical Engineering student at Pulchowk Campus (IOE), Tribhuvan University, with a strong foundation in power systems, control theory, and applied machine learning. Experienced in building and deploying predictive models (XGBoost, LSTM, 1D-CNN) end-to-end — from raw sensor data to interactive dashboards. Passionate about applying AI and embedded systems to solve real engineering problems in Nepal's energy, healthcare, and infrastructure sectors.

EDUCATION

Pulchowk Campus, Institute of Engineering (IOE)

Bachelor in Electrical Engineering — 82.36% (Up to 6th Semester)

Nov 2023 – Present

Lalitpur, Nepal

Orchid College, Biratnagar

Grade 12 (NEB) — GPA: 3.59 / 4.0

Morang, Nepal

Jeevan Bikas Public School

SEE — GPA: 3.95 / 4.0

Dhanpalthan, Morang

TECHNICAL SKILLS

Programming & ML

Python, Scikit-learn, XGBoost, Deep Learning (1D-CNN, LSTM), Pandas, NumPy, C, C++, MATLAB

Power Engineering

Power System Analysis, Control Systems, Circuit Design, SLD, SCADA concepts

Hardware & Embedded

ESP8266/ESP32, Arduino, PCB Layout & Fabrication, Proteus

Software & Tools

MATLAB/Simulink, AutoCAD Electrical, Dialux, OpenCV

Analytical Skills

Signal Processing, Numerical Methods, PID Control, Condition Monitoring

PROJECTS

Solar PV Power Generation Forecasting

May 2026 – Jun 2026

Python • Scikit-learn • XGBoost • LSTM • Pandas

- Engineered a data-driven forecasting framework predicting AC/DC power output using weather telemetry to optimize grid operations.
- Benchmarked 6 models (Linear Regression, Decision Tree, Random Forest, XGBoost, ARIMA, LSTM) for solar generation forecasting.
- Developed an interactive dashboard (index.html) to monitor dynamic power curves and model performance in real time.

Deep Learning Motor Fault Detection

Ongoing

Python • 1D-CNN • PyTorch • Signal Processing

- Developing a 1D-CNN framework to process mobile accelerometer telemetry for real-time electric motor fault diagnosis (4 classes: No Fault, Eccentricity, Broken Bar, Bearing).
- Collaborating with Dr. Bishal Silwal to collect and analyse mechanical vibration datasets from Pulchowk Campus laboratory equipment.

Synchronverter-Controlled Grid-Connected Solar PV System

Ongoing (Capstone)

MATLAB/Simulink • Power Systems • Virtual Inertia Control

- Simulating and validating frequency stability across three configurations — Baseline, VSG (ROCOF-based), and Synchronverter — on IEEE 9-bus and 39-bus test systems.
- Performing modal analysis (eigenvalues, damping ratio, participation factors) and transient fault studies.

Real-Time Computer Vision Pipeline

Jan 2026 – Feb 2026

Python • OpenCV • Haar Cascades • SVM

- Designed a real-time signal and image processing pipeline using SVM for feature extraction with optimized preprocessing for minimal latency.

PID Controller Optimization via PSO Algorithm

May 2025 – Nov 2025

MATLAB • Simulink • Control Systems

- Optimized PID controller parameters using Particle Swarm Optimization (PSO) for enhanced dynamic system stability.
- Minimized overshoot, settling time, and steady-state error; validated step response dynamics in MATLAB/Simulink.

Predictive Real Estate Valuation Model

Nov 2025 – Dec 2025

Python • Scikit-learn • Pandas • Matplotlib

- Built a multivariable linear regression model with outlier filtering and dimensionality reduction for predictive accuracy.

MENTORSHIP & WORKSHOPS

Electrical Design Workshop Instructor LOCUS 2027, IOE Pulchowk - Led a 6-day workshop covering AutoCAD Electrical, illumination design, point wiring, cable & DB sizing, SLD, and Dialux. - Guided participants through capstone projects to build portfolio-ready electrical design documentation.	2027
PCB Design & Fabrication Workshop Mentor Electrical Club, IOE Mentored students on schematic capture, Proteus simulation, PCB layout, chemical etching, soldering, and hardware debugging.	Jun 2025
IoT System Design Workshop Mentor Electrical Club & ECAST Taught real-time data acquisition using ESP8266/ESP32 microcontrollers; assisted with hardware-software interfacing and troubleshooting.	Dec 2025
Basic Electronics Workshop Mentor Electrical Club, Pulchowk Guided students in building Astable Multivibrators; explained BJT switching, RC timing, and waveform generation.	Dec 2025

LEADERSHIP & INVOLVEMENT

Sub-Finance Manager 33rd Saraswati Puja Committee, Pulchowk Managed dynamic budgeting and cost tracking for a major campus-wide event, ensuring optimal resource allocation.	Feb 2026
Member, 35th Executive Committee NTNBS, Pulchowk Campus Co-organized technical workshops, engineering quiz competitions, and student academic programs.	2024 – 2025
Event Organizer Senior Farewell Program, Pulchowk Campus Co-led a 10-member team executing a farewell event for 200+ attendees; managed a budget of NPR 250,000.	2026

AWARDS & HONORS

2nd Runner Up – Power Inverter & Smart Grid Simulation DELTA, IOE Purwanchal Engineered a 5V DC to 220V AC power inverter prototype; recognised for circuit stability and inverter topology design.	Feb 2025
Finalist – Energy Hackathon 8.0 LOCUS 2025, IOE Pulchowk Designed an IoT-based demand-side management solution for real-time load shedding mitigation and smart grid efficiency.	Jan 2025
Merit-Based Scholarship Tribhuvan University Awarded full merit scholarship for top performance in the nationwide IOE entrance assessment for Electrical Engineering.	2023

TRAINING & CERTIFICATIONS

Samsung Innovation Campus (SIC) — Coding & Programming Completed an intensive 80-hour Python-focused program covering AI, ML, and algorithm optimisation at Pulchowk Campus.	Dec 2025 – Jun 2026
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LANGUAGES

Nepali (Native) • English (Professional) • Hindi (Fluent) • Maithili (Native)

REFERENCES

Anil Kumar Panjiyar anil.panjiyar@pcampus.edu.np • +977 9851171043	Deputy Head of Department, Electrical Engineering, Pulchowk Campus
Amrit Dhakal amrit.dhakal@pcampus.edu.np • +977 9843296815	Assistant Professor, Electrical Engineering, Pulchowk Campus