

Swodesh Sharma

977-9869864464 | xarmaswodesh@gmail.com | Kathmandu, Nepal github.com/swodesh-2001

EDUCATION

Pulchowk Engineering College, Tribhuvan University

Lalipur, Nepal

Bachelor's in Electrical Engineering

Nov. 2019 – April 2024

- Ranked **158th** in Entrance Exam 2076 BS (2019 AD) out of nearly 18000 applicants. (*Top 1%*)
- Thesis: “Development of New Control Strategy in Transformerless Grid Connected PV Inverter to Reduce Leakage Current” PDF
- Graduated with **Distinction**, achieving **80.92%**.

RESEARCH INTERESTS

- Advanced Optimization Methods for Power System
- Renewable Energy Integration in the Grid
- Renewable Energy Converters
- Energy Management Systems
- State-of-the-Art ML Applications in Power Systems (RL, Transformer Models, Physics Informed ML)

RESEARCH EXPERIENCE

Ekbana Solutions

May. 2024 – July 2024

Lalitpur, Nepal

- Utilizing vision-based transformer models to analyze satellite images for assessing solar energy generation potential.
- Engaged in research aimed at improving large language model capabilities using multi-agent systems.

Department of Electrical Engineering, Pulchowk Engineering College

2023-2024

Lalitpur, Nepal

- Conducted a one-year research project on transformerless grid-connected inverters, which also served as my thesis work.
- Researched and developed an IoT-based load management device, which collects energy usage data and utilizes LSTM-based load forecasting for demand side management.

KEC OKRP

October 2023 - Jan 2024

Kalimati, Kathmandu

- Investigated the application of LSTM-based CNN models for self-driving cars, contributing to a publication in the OKRP Journal 2024.

NEA Transmission Department

May 2022 - July 2022

Ratnapark, Kathmandu

- Developed a proposal for the feasibility of using AI-equipped drones for transmission line monitoring.
- Trained vision models for localizing and classifying faults in the grid.

PUBLICATIONS

- “Predictive Load Management Using IoT and Data Analytics” presented at Artificial Intelligence of Things (ICAIoT 2023), Part of the book series: Communications in Computer and Information Science (CCIS, volume 1930). [Springer Link]
- “Numerical Methods for BE published under Photocopy Sewa, Lalitpur, Nepal”). [PDF]

PROFESSIONAL EXPERIENCE

Machine Learning Trainee

May 2024 – July 2024

EKbana Solutions Pvt. Ltd.

Lalitpur, Nepal

- Replicating research papers in PyTorch.
- Recent works include:
 - * Vision Transformer Model for solar energy generation estimation in an urban city.
 - * Use of multiple agents for improving large language model (LLM) capability.

AI Fellow Intern

January 2022 – January 2023

Fusemachine

Lalitpur, Nepal

- Learned foundational concepts in machine learning, deep learning, natural language processing (NLP), and computer vision.

President, Electrical Club Pulchowk Campus

January 2022 – January 2023

Pulchowk Campus

Lalitpur, Nepal

- Organized a PCB fabrication workshop with over 150 participants.
- Organized a house electrical design workshop with over 150 participants.
- Assisted in over 10 projects for the LOCUS National Technical exhibition.

SKILLS

Programming Languages: C, Python, C++

Libraries and Tools: TensorFlow, PyTorch, pandas, NumPy, Matplotlib, Scikit-learn, FastAPI

Version Control: Git

Operating Systems: Linux, Windows

Other Software: LaTeX, Microsoft Office Suite

Design Software: AutoCAD, Matlab, Simulink, Proteus, EasyEda

Electrical Design Skills: Transmission Line Design, Power Plant Design, Inverter Design, Photovoltaic Systems

Embedded System Programming : Atmega328p, Intel 8085, Intel 8086, PIC16F874, Node MCU

RELEVANT COURSEWORK

- Engineering Mathematics I-III (Calculus I-III, Vector Algebra, Matrices, Linear Optimization)
- Probability and Statistics
- Numerical Analysis
- Power System Analysis
- Power Electronics
- Engineering Economics and Project Management
- Analog and Digital Control System
- Electromagnetics , Electric Circuit Theory
- C , Object Oriented Programming, Microprocessor 8085/8086
- Transmission and Distribution Design
- Power Plant Design
- DeepLearning Specialization [DeepLearning.AI Coursera]

AWARDS/HONORS

- All Nepal IOE Electrical 2nd Topper for 7th Semester BE Exam
- Four year merit-based scholarship provided by Institute of Engineering I.O.E., T.U from 2019-2024 for undergraduate studies in Electrical Engineering at Pulchowk Campus
- Mahatmata Gandhi Scholarship 2017-2019 provided by Indian Embassy
- Ranked 1 at entrance examinaion and obtained Two year merit-based scholarship for upper secondary education (Grade XI-XII) at Takshashila Academy

VOLUNTEERING/INVOLVEMENTS

- Hardware Fellowship Instructor for LOCUS 2024 - Involved in teaching Atmega328p programming to students
- President of Electrical Club 2023 - Involved in teaching circuit simulation and PCB design in Proteus.
- Volunteered at 3rd International Conference on the Role of Energy in Sustainable Social Development,organized by the IEEE Power and Energy Society Nepal Chapter
- Member of Kathmandu Valley Leo Club Pulchowk Campus for year 2022

REFERENCES

- Dr. Indraman Tamrakar; Professor, Department of Electrical Engineering, Pulchowk Campus, IOE; Contact : imtamrakar@ioe.edu.np
- Asst. Prof Sanziwan Satyal; DHOD, Department of Electronics and Computer Engineering, Pulchowk Campus; Contact : sanziwans@pcampus.edu.np
- Bishow Karki Bekhayat; Trainee Lead for Robotic Transplant Surgery , RoyalSurgical College, Robotic Surgery Committee ; Contact : bishow.karki47@gmail.com