

Sneha Katwal

✉ skatwal222@gmail.com  linkedin.com/in/sneha-katwal  Kathmandu, Nepal

Education

Bachelor of Electronics, Communication and Information Engineering

Tribhuvan University, Institute of Engineering, Eastern Regional Campus, Dharan

Relevant Courses: Digital Signal Processing, Embedded Systems, Communication Systems, Machine Learning, Control Systems *Duration: 2019 – 2024*

Professional Experience

Research and Development in Machine Learning

May 2025 – Present

Real Time Solutions Pvt. Ltd., Lalitpur, Nepal

Contributing to machine learning research and backend system development with a focus on real-time data processing, model deployment, and system optimization.

Internship

Feb 2025 – May 2025

Real Time Solutions Pvt. Ltd., Lalitpur, Nepal

Assisted in system configuration of real-time data loggers and explored machine learning workflows for predictive analytics.

Operational Manager

Mar 2023 – Apr 2024

AAS Manufacture Pvt. Ltd., Dharan, Nepal

Led the design and development of circuit systems, coordinated manufacturing operations, and managed product assembly and deployment workflows.

Graphic Designer

Jul 2022 – Nov 2022

Pi Innovations Pvt. Ltd., Biratnagar, Nepal

Designed branding materials, collaborated on visual campaigns, and contributed to creative direction for product promotions.

Projects & Research

Minor Project: Human Detection & Tracking System

Built a YOLOv5-based system integrated with Arduino and servo motor to detect and track humans.

Major Project: Event Detection in Soccer Videos

Developed a deep learning-based event classifier using AlexNet architecture for identifying and extracting video highlights in soccer match videos.

Runway Visibility Prediction System

Implemented a self-learning image classification system using ResNet and FastAPI for real-time runway visibility prediction. Deployed on Jetson Nano 2GB, achieving X% prediction accuracy improvement.

Facial Recognition Attendance System

Created a face recognition-based attendance system using OpenCV and face embedding models.

Gesture-Controlled Hand Tracking System

Built a gesture detection system using OpenCV for real-time control through hand tracking.

Sanitary Pad Vending Machine

Designed and deployed a low-cost, ATMega328p-based vending machine with L293D motor driver.

Smart Irrigation and Greenhouse System (IoT)

Developed an IoT system using NodeMCU for automated irrigation and greenhouse control, optimizing water use and creating ideal environmental conditions.

Achievements

Winner, Yantra Business Cup Expo *Feb 2024*

Yantra 9.0 – Robotics Association of Nepal

Public Choice Winner, ACES Techfest 5.0 *Dec 2022*

Association of Computer Engineering Students

Winner, X-Tech Studio 3.0 *Oct 2022*

Electronics and Communication Engineering Student Society, Nepal

Volunteer Experience

Graphic Design Manager Core Team Regional Ambassador *Jun 2023 – Present*

Girls in Tech – Nepal

Led branding and design for campaigns promoting women's participation in technology.

Member *Sep 2020 – Apr 2024*

Robotics Club, Purwanchal Campus

Facilitated hands-on sessions on home automation and robotics prototyping.

Project Demonstration Coordinator, Organizer *Feb 2024*

Koshi Mini Yantra 2.0

Led public tech demonstration events to promote student innovations.

Organizer *Oct 2022*

XTech 3.0 Technical Event

Coordinated hackathons, roboraces, and tech exhibitions during the annual tech fest.

Treasurer *Nov 2020 – May 2022*

Electronics and Communication Engineering Student Society, Purwanchal Campus

Managed budgeting and financial planning for student-led engineering initiatives.

Technical Manager *Oct 2020 – Apr 2022*

ERC Girls' Society, Purwanchal Campus

Organized Arduino workshops and managed technical resources for student-led events.

Skills

Programming Languages: Python, C/C++

Machine Learning & CV: TensorFlow, OpenCV, ResNet, YOLOv5, Face Recognition Library, Model Deployment on Jetson Nano

Web & Software Development: FastAPI, Arduino, HTML, CSS, Git

Design & Prototyping: Adobe Illustrator, Photoshop, Proteus(basics), Circuit Design with AT-mega328p

Tools & Platforms: Jetson Nano, Arduino IDE, GitHub, system configuration

Soft Skills: Leadership, Technical Mentoring, Project Management

References

Assistant Prof. Pukar Karki

Professor, Institute of Engineering, Tribhuvan University
pukar@ioepc.edu.np

Assistant Prof. Deependra Neupane

Mentor, Institute of Engineering, Tribhuvan University
deependran.neupane@gmail.com

Assistant Prof. Manoj Kumar Guragai

Supervisor, Institute of Engineering, Tribhuvan University
mkguragai@gmail.com