

Sabin Acharya

ELECTRONICS AND COMMUNICATION ENGINEER

Kathmandu, Nepal

☎ (+977) 9869684141 | ✉ acharyasabin811@gmail.com | 📷 acharyasabin11 | 🌐 acharyasabin11

Research Interest

Electronics Engineer with a strong foundation in embedded systems and robotic system integration. Experienced in developing humanoid robotic platforms, including embedded control architecture design, motor coordination, and real-time system integration. These experiences have directly shaped research interests in robotic systems, particularly in designing efficient and robust embedded system solutions for perception, control, and actuation. Prior works in robotics and intelligent systems, provides demonstrated experience in applying systematic research methods to embedded and robotic system development.

Technical Skills

Programming Languages	Python, C, C++, JavaScript, Dart
Embedded Systems	Arduino R3, ESP32, Raspberry Pi Microcontrollers, Various analog and digital sensors
3D Modeling	Autodesk Maya, Solidworks
Robotics Simulations	ROS2, Gazebo
Electronics	Soldering, Electronic Devices, Power Electronics
Web Technologies	HTML, CSS, JavaScript, React.js, Node.js, Next.js, Nest.js
Mobile Development	Flutter
Tools and Platforms	Git, Supabase, Unity

Work Experience

Institute of Engineering, Thapathali Campus

Kathmandu, Nepal

TEACHING \INSTRUCTION ASSISTANT (T\IA)

Dec 2025 - Present

- Appointed under IOE Teaching/Instruction Assistant Recruitment Guideline, 2082
- Conducted and assisted laboratory and practical classes (up to 30 periods \week)
- Assisted faculty members in academic delivery, research activities, and departmental administration
- Maintained laboratory records, student assessments, and academic documentation
- Supported undergraduate students during experiments and project work

Madan Bhandari University of Science and Technology

Makwanpur, Nepal

RESEARCH ASSISTANT (RA)

Feb 2026 – May 2026

- Contributed to the development of a **Smart Blind Curve Alert System** under the supervision of **Dr. Ritu Raj Lamsal**, funded by the **Ministry of Education, Science and Technology (MoEST), Nepal**, to enhance road safety in low-visibility and accident-prone road segments.
- Developed **embedded firmware** for distributed sensing and warning nodes using **ESP32** microcontrollers and integrated multiple sensing modalities including **AWR1843BOOST mmWave radar**, ultrasonic sensors, and relay-based alert systems.
- Implemented long-range wireless communication using **LoRa SX1278** modules for reliable vehicle detection data exchange and hazard notification between geographically separated roadside units.
- Assisted in system integration using **Raspberry Pi 4** for edge processing, device coordination, and communication management within the intelligent transportation framework.
- Built and validated hardware prototypes on **matrix/perf boards**, performing circuit assembly, module interfacing, field testing, debugging, and performance optimization under real-world operating conditions.
- Conducted experimental testing, data collection, and system verification to evaluate detection accuracy, communication reliability, and overall system effectiveness for blind-curve collision prevention.

Axis Tech

Kathmandu, Nepal

ROBOTICS ENGINEER

Apr 2025 – Nov 2025

- Developed a custom **humanoid robot for hospitality applications** featuring face tracking, face recognition, bi-directional human-robot communication, and expressive human-like gestures.
- Led **software and firmware development** using ROS, implementing real-time perception and control pipelines.
- Implemented computer vision modules using **MediaPipe**, **FaceNet**, **CenterFace**, and **SORT** for robust multi-object tracking.
- Designed and tuned **PID control algorithms** for smooth and stable humanoid motion.
- Integrated motors and sensors using **Adafruit motor control libraries** and performed hardware interfacing with **Raspberry Pi**.

Education

Tribhuvan University, Institute of Engineering, Thapathali Campus

B.E. IN ELECTRONICS, COMMUNICATION AND INFORMATION ENGINEERING

- Thesis: Enhancing Humanoid Functionality through Vision based Navigation and Object Manipulation

Kathmandu, Nepal

Apr. 2020 - Apr. 2024

Canvas International College

HIGH SCHOOL

Kathmandu, Nepal

May. 2018 - May. 2020

Amar English Secondary School

SECONDARY SCHOOL

Kathmandu, Nepal

Apr 2018

Honors & Awards

2025	Semestor Topper , 1st, 2nd, 3rd, 4th, 6th and 8th Semestor, Thapathali Campus	Kathmandu, Nepal
2025	Participant , National ICT Day 2025 by Ministry of Information and Technology	Kathmandu, Nepal
2025	Participant , Young Scientists Conference 2025 by Nepal Academy of Science and Technology	Lalitpur, Nepal
2021	Scholarship , Golden Jubilee Scholarship by Indian Embassy – 20th Batch	Kathmandu, Nepal
2022	Participant , Smart Farm Lab Project by KOICA	Kathmandu, Nepal

Publication

- Shah, B. K., **Acharya, S.**, S., Karki, S., Pathak, A., and Shakya, S. (2025) “Enhancing humanoid robot functionality through vision-based navigation with fall recovery and object manipulation,” *Journal of Innovations in Engineering Education*, vol. 8, no. 1, pp. 139–149, 2025, doi: 10.3126/jjee.v8i1.82571

Professional Involvement, Outreach and Extra-Curricular Activities

2018	Object Modeling with Autodesk Maya , Maya Animation Academy	Kathmandu, Nepal
2024	The Ultimate React Course , Udemy (Jonas Schmedtmann)	Udemy.com
2023	The Complete JavaScript Course , Udemy (Jonas Schmedtmann)	Udemy.com
2022	Dart and Flutter Training	Kathmandu, Nepal
2022	Soldering and Electronics Training	Kathmandu, Nepal