GOKARNA BASKOTA

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EDUCATION

Master of Science in Biosystem Engineering — May 2025 - Present
University of Manitoba, Winnipeg, MB

Bachelor's in Electronics Communication and Information Engineering — 2018 - 2023
Tribhuvan University, Institute of Engineering, Nepal

EXPERIENCES

Graduate Research Assistant — May 2025- Present
University of Manitoba, Winnipeg, MB
- Robotics for crop disease rating.

Teaching Assistant — Sep 2025- Present
University of Manitoba, Winnipeg, MB
- Teaching assistant for **ECE3760** Digital System Design 1, **ECE 2220** Digital Logic Systems and **ECE 4240** Microprocessor Interfacing.

Research and Development Engineer — Jan 2025 - May 2025
Orion Space Pvt. Ltd., Kathmandu, Nepal
- Embedded designer and programmer in commercial Pico satellite.
- Antenna tuning and installation, GFSK and CW uplink and downlink implementations.

Electronics Engineer — Apr 2024 - Jan 2025
Yarsa Tech Pvt. Ltd., Lalitpur, Nepal
- Research and develop consumer electronics systems in Nepal.
- Focusing on circuit designing, and developing firmware in embedded C/C++ for µc like Puya and ESP32.

Research and Development Engineer — May 2023 - Apr 2024
Orion Space Pvt. Ltd., Kathmandu, Nepal
- PocketQubes development along with their PCB, antenna and communication channels.
- Low-voltage Engineering and Firmware Development.

Undergraduate Researcher — Jan 2020 - May 2023
Eastern Regional Campus, Dharan, Nepal
- Completed undergraduate minor and major projects based on Control systems and Robotics.
- Involved in projects related to CNC machines, Robotics Arm, SLAM, Drones, etc., and participated in national/International robotics competitions.

PUBLICATIONS

- **Baskota, G.**, Devkota, R., Paneru, S., Yadav, S., Neupane, D., & Dhakal, O. P. (2023, April). **Analytical and Experimental Approach for Modeling, Simulation and Validation of Two-Wheeled Self-Balancing Robot**. In 2023 International Conference on Inventive Computation Technologies (ICICT) (pp. 1313-1320). IEEE.
- Paneru, S., Yadav, S., Devkota, R., **Baskota, G.**, Guragai, M. K., Dhakal, O. P., Neupane P., & Shrestha, A. (2023, September). **Mapping and Localization of Mobile Robot with Monocular Camera Using VSLAM**. In Int. J. Adv. Engr. 2023, 6(2), pp.24-36.

PRESENTATIONS

Poster Presentation and Pitch on Multi-View Robotics Imaging System — Dec 2025
Manitoba Agronomists' Conference | University of Manitoba, Winnipeg, MB

Development and Assembly of the CUBEEK Training Kit — Jan 2025
CubeSat Design Workshop | Nepal Academy of Science and Technology (NAST), Lalitpur, Nepal

PCB Design Considerations and Fabrication Process — Jul 2024
PCB Design and Fabrication Workshop | Kantipur Engineering College, Lalitpur, Nepal

Present Scenario of Satellite Development in Nepal Jun 2023
Youth Scientist Submit | Dhangadhi, Nepal

Career in Electronics Engineering: Pathways and Opportunities Jun 2022
The Engineer's Talk | Eastern Regional Campus, Dharan, Nepal

Hello Ambulance: Mobile App to Locate the Nearest Ambulance Instantly Apr 2022
Startup & Idea Fest 2022 | Biratnagar, Koshi Province, Nepal

PROJECTS AND RESEARCH

Sanosat 2 - PocketQube for Research and Development
- PocketQube with camera and sunsensors as a major payload, which communicates in the ham radio band.

Face Attendance System Powered by Machine Learning and Computer Vision
- Utilized CNN, CV, and dlib algorithms to recognize persons accurately and store face data for attendance.

Automatic Plantation Robot for Precision Agriculture
- A robot that can precisely navigate the field and follow provided coordinates for sapling plantation.

Simulation And Comparison Between Controls For Inverted Pendulum In Matlab/Simulink
- Analyzed various control system algorithms on an inverted pendulum and achieved superior results with LQR.

Vegetable Grading System Using Computer Vision
- Mechanical and electronic systems are used to sort tomatoes by size and ripeness for farm agriculture.

Cloud-Based Environmental Monitoring System
- IoT system with hardware and firmware for data collection and updating on AWS via MQTT protocol.

Multi-Purpose Dryer for Cardamom Harvesting
- PID-controlled temperature-maintained enclosed drying system specially designed for cardamom.

Camera Module/Optical Payload for Pico-Satellites
- The optical payload of pico/nanosatellites that can transfer SSDV packets of image to the OBC.

Analog Automatic Water Level Monitoring and Pumping System
- Logic gates & timer powered for real-time water level monitoring and automatic refilling system for households.

AWARDS & HONORS

Scholar | RBC Scholarship for Sustainable Agriculture 2025 - 2027
University of Manitoba x RBC Bank | Winnipeg, MB

First Runner-Up | Model-Based Simulation Using MATLAB/SIMULINK Competition Jul 2021
National Level Technical Event–DELTA 2.0 | Dharan, Nepal

Winner | Self-Driving Robotics Competition (Automatic Akhada) Jan 2020
YANTRA 8.0 by Robotics Association of Nepal | Kathmandu, Nepal

Winner | Robo War and Robo Race Feb 2019
Prayog Exposition 1.0 | Eastern Regional Campus, Dharan, Nepal

Mahatma Gandhi Scholarship Scheme 2016
Embassy of India | Kathmandu, Nepal

VOLUNTEERING & LEADERSHIP

Mentor May 2024
DeerHack 2024 | Kathmandu, Nepal

President May 2022 - May 2023
Electronics and Communication Engineering Student Society (EXCESS) | ERC

Executive Member Sep 2020 - May 2022
Robotics Club | Eastern Regional Campus (ERC)

Tech Community Leader Jun 2022

GitHub Education - GitHub Field Day | Nepal

Robotics and IoT Trainer 2020 - 2023
Eastern Regional Campus | Dharan

ADDITIONAL COURSES

KARI International Space Training (KARIST) Sep 2023
Korea Aerospace Research Institute | Online

Third Nepal Winter School in AI Dec 2021
Nepal Applied Mathematics and Informatics Institute for Research (NAAMII) | Kathmandu, Nepal

Neural Networks and Deep Learning course on Coursera Jul 2021
Andrew Ng, DeepLearning.AI | Online

SKILLS

Active Perception, SLAM, Computer Vision, Machine Learning, Control Systems, Embedded System Design
Software: Robot Operating System(ROS), MATLAB/Simulink, Kicad, Fusion360, SDR Sharp
Programming: C/C++, Python
Hardware: STM32, Arduino/ESP, RaspberryPi
Others: Linux, GIT/Version Control

REFERENCES

Dr. Jiating Li Advisor
Assistant Professor, Biosystem Engineering
University of Manitoba
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