Bal Krishna Shah

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Summary

A highly motivated and passionate engineer and tech enthusiast with hands-on experience in IoT, robotics, 3D design, and product development. Experienced in executing high-level robotics projects across different categories, demonstrating strong problem-solving and technical skills. Eager to embrace opportunities to learn, innovate, and apply emerging technologies to real-world challenges. Possesses a solid foundation in electronics, communication, and information engineering, with a deep understanding of technology and its practical applications.

Areas of Interest

Robotics, Automation, Internet of Things, Microelectronics, Microcontrollers, Artificial Intelligence, Machine Learning, Computer Vision, Sensors, Embedded Systems

Skills

- **Programming Languages:** Python, C/C++, C#, MATLAB, Assembly 8085, 8086
- **IDEs:** VS Code, PyCharm, Intellij IDEA
- **ECAD / Design Tools:** KiCAD, EasyEDA, Altium Designer, Onshape, Fusion 360
- **Robotics Simulation:** CoppeliaSim
- **Libraries and Frameworks:** OpenCV, TensorFlow, NumPy, SciPy, Pandas, Mediapipe, Scikit-Learn, YOLO
- **Embedded Hardware:** Arduino, Raspberry Pi, Esp32, Esp32-Cam, Esp8266

Projects

KAAZI - The Humanoid Robot *ongoing*

- Developing a humanoid robot featuring full animatronic capabilities for natural conversation, expressive facial gestures, and realistic arm movements. Implementing vision-based perception and a fully compliant control system for safe and adaptive interactions. Leading integration of hardware, AI modules, and sensor systems to achieve lifelike autonomous behavior.
- Tools Used: Fusion 360, Onshape, Raspberry Pi, Arduino, CoppeliaSim, ROS/ROS2

Enhancing Humanoid Robot Functionality Through Vision-Based Navigation with Fall Recovery and Object Manipulation *2025*

- A miniature humanoid robot with 20 DoFs capable of navigating to an object, pick and place it to required location with fall recovery based on vision and gyroscope sensor
- Tools Used: Esp32, MPU6050, Fusion-360, Proteus

Virtual hand Simulation of Hand Gestures using Hall Effect Sensors *2024*

- Developed a wireless physical wearable glove that allows users to interact in virtual environment by manipulating the glove using Hall-Effect sensors
- Tools Used: Onshape, Node Server, Unity

Radio Controlled Automatic Agricultural Robot *2017*

- Developed a radio controlled robot capable of planting seeds automatically and water based on moisture in the soil using in-house seed planting mechanism and moisture sensor
- Tools Used: RF Tx/Rx, Moisture sensor, Arduino

Experience

Robotics Engineer · *Part-time* *Apr 2025 – Present*
Axis Tech Pvt. Ltd., Kathmandu, Bāgmatī, Nepal · Hybrid

- Led hardware integration, assembly, and testing of a humanoid robot; collaborated on AI module integration, training, and testing, and contributed to robot design.

Academic and Professional Service

Peer Reviewer *2025*
Journal of Automation, Mobile Robotics and Intelligent Systems (JAMRIS)

- Reviewed a manuscript on reinforcement learning for autonomous vehicles.
- **Decision:** Request Revisions.

Awards and Recognition

National ICT Day Recognition *2024*
Ministry of Communication and Information Technology, Government of Nepal

- Final year project recognized at the national level for contributions in technological innovation and autonomous robotics applications.

Best Final Year Project Selection *2025*
3rd Thapathali Graduate Conference, IOE Thapathali Campus

- Final year project selected as one of the best by the Department Project Committee for innovation in humanoid robotics and autonomous navigation systems.

Selected Exhibitor — Young Scientists' Conference *2025*
National Youth Council, Government of Nepal / Robotics Association of Nepal

- Project selected for exhibition among national submissions at the Youth Scientists Conference on Emerging Technologies: Robotics, AI and Drones.

Professional Development

Fundamentals of Scientific Paper Writing and Publishing *2023*
AIChE-IOE

- Completed a 2-day webinar on scientific paper writing and publishing fundamentals, learning best practices for academic writing and research publication.

Education

Institute of Engineering, Tribhuwan University *2021 – 2025*
Bachelor in Electronics, Communication and Information Engineering

National Examination Board, Aroma College *2018 – 2020*
+2 Science

References

Mr. Aashish Pandey
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Mr. Sabin Acharya
Robotics Engineer
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Relationship: Colleague / Team Member