Saju Khakurel

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EDUCATION

Bachelor's Degree in Electronics and Communication Engineering
Tribhuvan University, Institute of Engineering, Pulchowk Campus, Aggregate: 69.68%
2017 – 2022 | Lalitpur, Nepal

Higher Secondary Education (10+2)
Kathmandu Bernhardt College, Aggregate: 78.30%
2015 – 2017 | Kathmandu, Nepal

PROJECTS

Disinfectant Robot
Funded by Nepal Academy of Science and Technology (NAST)
2020/07 – 2021/06
- Contributed to a COVID-19 biomedical research initiative by designing, fabricating, and programming the embedded system for a disinfectant robot.
- Executed PCB design, developing the robot's core infrastructure, and engineered a 2D disinfectant spray mechanism controllable via Bluetooth-enabled mobile app.

Automatic Modulation Classifier using DL
Final Year Project, Pulchowk Campus
2021/05 – 2022/04
- Developed an intelligent system utilizing Deep Learning models to classify modulation types within noisy signals
- Implemented RNN with LSTM architecture and experimented with variations like Bi-LSTM, assessing the impact of attention layers on classification accuracy

Simultaneous Localization And Mapping (SLAM)
2020/11 – 2021/02
- Implementation of tiny SLAM algorithm using turtlebot3 packages provided by ROS and aided by simulating as well as visualizing tools
- Deployed the Particle Filter for optimizing the position of the bot on the map

Hand gesture controlled car
2018/01 – 2018/02
- Motion-controlled miniature vehicle from a distance using a gyro module, Bluetooth, and Arduino

Rockbye Baby
AI powered Smart Cot
2020/01 – 2020/02
- Winner of LOCUS Project Competition - SDG 3 category, LOCUS 2020
- Designed a moisture sensor using a 555 timer

PROFESSIONAL EXPERIENCE

Embedded System Engineer (Vehicle Software)
Yatri Design Studio
2021/12 – 2024/09 | Kathmandu, Nepal
- Completed the development of a comprehensive Over-The-Air software project for embedded systems in bikes and charging stations
- Created an internal server for charging stations to optimize functionality
- Programming for a one-wire temperature sensor, handlebar push buttons, OBD Flash, Automatic Driving Assistance System, MMC interfacing

Communication Officer
Yatri Energy, Supported by USAID- Urja Nepal
2023/07 – 2024/09 | Kathmandu, Nepal
- Maintain database of Yatri Energy Public Charging Station Project
- Organize an EV Focus group study program among the EV-concerned authorities and users in Nepal

Intern
Yatri Design Studio
2021/12 – 2022/04 | Kathmandu, Nepal
- Conducted a research-oriented internship focusing on Over-The-Air programming using C/C++ languages
- Successfully developed a custom bootloader in the STM32 series, enabling the flashing of new application code received through UART

Hardware Designer and Embedded System Programmer
Robotics Club, Pulchowk Campus
2018 – 2020 | Lalitpur, Nepal
- Contributed to PCB design, fabrication, and testing for the electronics hardware of robots participating in ABU ROBOCON 2019 and 2020
- Coding for rotary encoders to compensate the yaw

Social Media Manager and Content Creator
IEEE-Pulchwok Student branch
2021 – 2022 | Lalitpur, Nepal
- Facilitated communication across various departments to compile guest lists and distribute event invitations to students, faculty, and external guests
- Developed and executed engaging content strategies for the Facebook page, consistently sharing event updates and news to drive audience engagement and reach

Newsletter Editor
IEEE-Pulchowk Student branch
2020/02 – 2020/12 | Lalitpur, Nepal
- Responsible for addressing the queries regarding our committee, events, memberships

VOLUNTEER AND LEADERSHIP

IEEE Student Branch
Committee Member
2020/02 – 2022/04 | Pulchowk Campus
- The first batch of committee member
- Organized multiple programs like webinars, blood donations, weekly tech talks

Instructor/Mentor
Locus 2019/2020/2022
2019 – 2022 | Pulchowk Campus
- Contributed to teaching both fundamental and advanced hardware courses
- Topics covered Breadboarding, Arduino, Soldering, Sensors, Motors, PCB design, fabrication, and programming

Instructor/Mentor
Godawari Residential School
2020/01 – 2020/02 | Godawari, Lalitpur
- Mentored middle school students for their science exhibition regarding technical projects conducted by Robotics Club, Pulchowk Campus

Teacher
Skill Tour
2024/05 – 2024/09 | Lalitpur, Nepal
- Introduce programming to school children, focused on C programming
- Teach them basics of robotics via Arduino like pin signal, sensor interfacings like ultrasonic, IR, LDR

Focus Group Discussion
Yatri Energy, Powered by USAID
2024/04 – 2024/05
- Conducted two-week-long awareness campaign regarding charging stations and EVs via travelling to the major cities of Nepal
- Presentation followed by group discussion and interactive session regarding the perception of EVs with the people around the nation
- Assisted in the conduction of technical events like tech talks and blood donations

Avionics system designer, Team Member
NEAR Aerospace
2020/08 – 2020/12 | Lalitpur, Nepal
- Contributed to the design and production of data acquisition modules
- Conducted research focused on enhancing control systems for optimized and safe aircraft landings

SKILLS

C/C++, Python, KICAD, PCB Designing, Robotics, ROS, Embedded Systems

PUBLICATIONS

Book Contribution
- Maharjan, Asim, and Saju Khakurel. “Introduction to IoT.” IoT, Machine Learning and Blockchain Technologies for Renewable Energy and Modern Hybrid Power Systems, edited by C. Sharmeela et al., River Publishers, 2022, pp. 1–23