# Saju Khakurel

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## EDUCATION

**Joint Master's Degree Erasmus Mundus Programme**
*European Master on Embedded Intelligence Nanosystems Engineering (EMINENT)*
2024/10 – present | Germany

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

**High School**
*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

## WORK 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

**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

## 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