Sumit Kumar Mahato

BE. Mechatronics Engineering

Department of Mechatronics Engineering

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Career Objective

To pursue a challenging role in the field of Artificial Intelligence and Robotics, with a focus on Advanced Driver Assistance Systems (ADAS), where I can apply my technical knowledge and problem-solving skills to develop intelligent, real-world solutions that enhance safety, automation, and human-machine interaction.

Education

KPR Institute of Engineering and Technology — **Sep2023 – Current**
B.E. Mechatronics Engineering — CGPA: **7.6**

Moonlight Secondary School, Lalitpur — **Jul 2021 – Aug 2023**
Higher Secondary — Percentage: **87%**

Areas of Interest

- Self Driving Car
- Robotics
- AI & ML

Experience

Mayagreens – Intern

- Developed a **computer vision model** to **identify plant species**.
- Created and labeled **datasets** for training plant identification models.
- Developed a **push notification system** using **Vue3.js**.
- Built a **graphical sensor data dashboard** using **Grafana**.

KKR Robotics Pvt. Ltd. - ROS Developer Intern

- **ROS2 Development:** Designed and managed **ROS2 launch files** for node communication (**talker.py & listener.py**).
- **Differential Drive Control:** Modified **gz_ros2_control** to implement **square path navigation** for a **differential drive robot**.
- **Simulation & URDF:** Designed and **spawned a URDF-based robot** in **Gazebo** with a **Diff Drive plugin**.
- **Keyboard Teleoperation:** Integrated **keyboard-based teleoperation** for **real-time robot control**.

Roles and Responsibilities

Technical Led of IEEE- VTS, KPRIET *Oct 2023 - Dec 2024*

Executive Member of IEEE- VTS, KPRIET *Oct 2023 - Dec 2024*

Skills

Technical: UI/UX Design, Web Development, Data Preprocessing and Analysis, Machine Learning, Deep Learning (Computer Vision), MATLAB, ROS2
Embedded Systems & IoT: Raspberry Pi, Pixhawk, Mission Planner, Arduino, IoT
Programming Languages: C, Python, JavaScript
Libraries & Frameworks: React.js, Next.js, NumPy, Pandas, Matplotlib, OpenCV, YOLOv, Scikit-learn, TensorFlow, Keras
Operating Systems: Linux (Kali, Parrot, Ubuntu), Windows
Version Control: Git, GitHub

Projects

KrishiBot - Smart Crop Recommendation System

- **Description:** Utilized the Kaggle Crop Recommendation dataset comprising soil nutrient ratios (N, P, K), temperature, humidity, pH, and rainfall data to build a precision agriculture advisory system.
- **Implementation:** Trained an XGBoost classification model for crop prediction and deployed it via a multilingual web app with integrated chatbot, real-time weather API, and Google Translate API.
- **Outcome:** Achieved recommending optimal crops, enabling data-driven decisions for farmers across diverse linguistic regions.

- **Technologies Used:** Python, XGBoost, Scikit-learn, HTML, CSS, Javascript, Google Translate API, Weather API
- Website : https://krishibot.netlify.app/

Music Auto-Tagging using CRNN

- **Description:** Collected and preprocessed the Lakh MIDI and MagnaTagATune datasets, including **25,863 music clips** with binary annotations across 188 tags.
- **Implementation:** Trained a **Convolutional Recurrent Neural Network (CRNN)** for **multi-label classification** on the **top 50 most popular tags**.
- **Outcome:** Developed a **real-time music clip classification system** using **TensorFlow** and **Keras** for **genre and mood identification**.
- **Technologies Used:** Python, TensorFlow, Keras, CRNN

Plantfix – Plant classification and Health Identification

- **Description:** Collected and labeled datasets from various sources (**Unsplash, Pixar, etc.**).
- **Implementation:** Trained models on **300K+ images** of **1,000 plant species** and implemented **real-time detection** using **YOLOv8 and TensorFlow Keras**.
- **Technologies Used:** Python, OpenCV, YOLOv8, Keras
- **GitHub:** Plant Health Identification | Plant Classification

Drowsiness Detection

- **Description:** Developed a **drowsiness detection model** that **identifies if a person is sleepy**.
- **Implementation:** Trained the model using **YOLOv8** for accurate detection.
- **Technologies Used:** Python, OpenCV
- **GitHub:** Drowsiness Detection

TaskNest

- **Description:** Developed a **fully functional student-focused website** with multiple features.
- **Implementation:** Designed and built different web pages, integrated APIs, and deployed via **GitHub**.

- **Technologies Used:** JavaScript, HTML, CSS, Tailwind CSS, Bootstrap, Font Awesome, APIs
- **Website:** TaskNest

Fashion E-Commerce Frontend

- **Description:** Developed a **fashion e-commerce site frontend** for an enhanced user experience.
- **Technologies Used:** HTML, CSS, Tailwind CSS, Bootstrap
- **Website:** Fashion Website

Awards & Achievements

♦ Runner-Up in Pitch Up Competition	Sep 2024
♦ Best Project Award at College Science Day	Feb 2024
♦ 1st Rank in Hetauda Sub-metropolitan Science Exhibition	Feb 2019
♦ Best Presentation Award at Inter-School Science Exhibition	Jan 2019

Industry Offered Certifications

♦ Advanced Driver Assistance Systems (ADAS)	Jan 2025
♦ Autonomous Mastery: Leading the Future of Self-Driving Cars	Nov 2024
♦ Fundamentals of Accelerated Computing with Python	Oct 2024
♦ Fundamentals of Accelerated Computing with CUDA C/C++	Oct 2024
♦ MATLAB Fundamentals	Oct 2024
♦ Robo-AI: Industrial Training on Robotics, Automation & AI	Sep 2024
♦ Deep Learning Python Project: CNN-Based Image Classification	Aug 2024
♦ Master Python Web Scraping & Automation (BS4 & Selenium)	Aug 2024
♦ Robotics and AI	Aug 2024
♦ Become a Deep Learning Engineer (PyTorch)	Mar 2024
♦ Introduction to Graphic Design (UI/UX)	Jan 2024
♦ Python for Beginners	Jan 2024