

Mutte Ur Rehman

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Experience

HyLight, Embedded Systems Engineer | Le Plessis-Pâté, France

June 2024 - Jan 2025

- Leading the design and development of custom PCB circuit boards tailored for the unique requirements of hydrogen airships.
- Writing efficient and reliable code in Python to create and maintain test bench setups, ensuring optimal performance and integration of various components.
- Developing PX4 drivers to seamlessly integrate diverse sensors with the Pixhawk flight controller, enhancing functionality and safety of aerial inspection systems.
- Working closely with a multidisciplinary team to innovate and implement cutting-edge technologies in aerial inspection.

Prime Smart Systems, Robotics and Computer Vision Engineer | Remote

July 2021 - September 2024

- Developed and deployed computer vision systems using OpenCV, Python, and other tools to solve real-world problems in various industries.

ImViA, Robotics & Control Engineer Thesis Intern | Le Creusot, France

Jan 2023 - June 2023

- Developed robust **non-linear control** for quadcopters and wheeled robots, enabling precise tracking, disturbance resilience, and computer vision integration for real-time autonomy.
- Tested on AR Drone 2.0, DJI Tello Drone, and TurtleBot3.

Z-PARADISE SAS, Robotics & Control Engineer Intern | Staffelfelden, France

June 2022 - Sep 2022

- Pool Quality Sensor: Designed PCB and programmed the swimming pool filtration management system using various components ESP32, sensors, & **solar power** and implemented **Z-wave protocol**.

Sky High Escape Rooms, Robotic Software Engineer | Remote

Aug 2020 - Oct 2020

- Node-RED** escape room program for Raspberry Pi with multiple user inputs, **camera feeds**, and HDMI/audio output, designed with a specific **sequencing algorithm**.

Education

MSc in Computer Vision and Robotics (VIBOT), Université de Bourgogne | Le Creusot, France

2021-23

BE Mechatronics Engineering, Air University | Islamabad, Pakistan

2015-19

Courses: Advance Linear Algebra | Embedded Systems | Real Time Imaging & Control | ML | DL | Perception | Autonomous Robotics | Controls | Advance Image Processing | Scene Segmentation and Interpretation

Skills

Programming Python, C/C++, C#, embedded C, Catkin, CUDA, CMake, Matlab, Git, Scripting (Bash), Gstreamer
Software Linux, Pm2, Tensorflow, Pytorch, Docker, OpenCV, Solidworks, PyQt, Tkinter, ROS, V-Rep, Gazebo, Arduino, PLC, ESP32

Projects

Autonomous-Driving Turtlebot3

Sep 2022 - Jan 2023

S3 -Robotics Project (Course Project)

- Autonomous driving of a ground differential robot by lane detection in the Autorace Challenge, including a low-light tunnel.
- Utilized **computer vision** algorithms in **Python ROS** to perform **Lane Detection** and autonomously navigate.

Visual Servoing using ROS and Python

Sep 2022 - Jan 2023

S3 -Multi Sensor Fusion and Tracking (Course Project)

- Used **Python ROS** to calibrate camera in Eye to hand camera configuration, did pose estimation, calculated distance & orientation to reach the destination and applied **A-Star** to determine the path without obstacle. Developed **Robot control system** to drive robot.

SnowPlow Robot

Jul 2021 - Sep 2021

Freelance Project

- A smart snowplow robot equipped with OpenWeather API for snow monitoring, **geofencing-based** driveway clearing, **RTK GPS** path planning, and obstacle avoidance using **LIDAR**.

QR-Driven Parallel Automation System

May 2020 - Aug 2021

Freelance Project

- Designed a PCB with **I2C** integration and developed **concurrent control** software for 48 pumps, 32 servo motors, and 16 stepper motors, using QR code scanning and **multithreading & multiprocessing** for efficient operation.

Portable Weather Station Dashboard

Jan 2020 - March 2020

Freelance Project

- Developed a portable weather station powered by **Raspberry Pi** and **OpenWeather API**
- Designed a dynamic dashboard built using **Grafana**, **InfluxDB**, and **Telegraf** for real-time weather **data visualization**.

UVC Light Disinfectant Robot

Nov 2019 - Feb 2020

Freelance Project

- Designed **PCB**, **control algorithm**, and **user interface** for UVGo1, a disinfectant robot utilizing **UV-C** (254nm) light to eliminate bacteria and viruses from surfaces.

Publication

Artificial Neural Network Based Self-tuned PID Controller for Flight Control of Quadcopter, 2019-ICEET, Lahore. [Link](#)