

Mutte Ur Rehman

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Experience

- 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.
- Prime Smart Systems, Robotics and Computer Vision Engineer** | Remote July 2021 - Aug 2023
- Developed and deployed computer vision systems using OpenCV, Python, and other tools to solve real-world problems in various industries.
- 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](#)

Achievements

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| 2019 | Vice Chancellor's Recognition Award among 1500 students , Air University | Islamabad, PK |
| 2019 | 1st Position at Robo-rumble Competition , SOFTEC 2019 – Fast University (NUCES) | Lahore, PK |
| 2019 | 1st Position at Robowars Competition , AirTech'19 - Air University | Islamabad, PK |