ANAS KHERRO

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Mohamed VI Polytechnic University, Rabat, Morocco
Robotics Engineer — PhD Student

Education

PhD Student in Robotics, Automation and Electronics — Ben Guerir, Morocco
Mohamed VI Polytechnic University (UM6P) — *Oct 2024 – Present*

Electromechanical Engineer, Control and Industrial Management — Meknes, Morocco
ENSAM (National School of Arts and Crafts) | *Final Grade: Good* — *Sep 2019 – Jul 2024*

Baccalaureate in Mathematical Science A — Midelt, Morocco
Hassan II High School — *Sep 2016 – Jul 2019*

Experience

End of Studies Internship — Ben Guerir, Morocco
Mohamed VI Polytechnic University – Vanguard Center — *Mar 2024 – Sep 2024*

- Implemented a global path planning and tracking architecture for a quadcopter in obstacle-dense environments using ROS and Pixhawk.
- Benchmarked path-tracking algorithms such as MPC and PID.
- Developed a path-planning technique based on Hybrid A*.

Training Internship — Meknes, Morocco
ONCF — *Aug 2023 – Sep 2023*

- Automated the railway brake testing process using Siemens S7-1200 PLC.
- Built a Node-RED dashboard for monitoring, data recording, and test reporting.

Initiation Internship — Khouribga, Morocco
OCP — *Jul 2022 – Aug 2022*

- Designed the loading system for an excavator wheel.

Projects

- Design, simulation, and implementation of a ROS2-based autonomous Unmanned Surface Vehicle with Extended Kalman Filter, state estimation and sensor fusion.
- Development of Path-tracking for an autonomous ground vehicle in CARLA/ROS and integration of vision-based traffic sign detection in control loop.
- Simulation of a WAM-V USV in ROS/Gazebo with a control system for path tracking.
- Adaptive sliding mode control of a quadcopter for trajectory tracking.
- SCADA supervision of a photovoltaic inverter via Node-RED (Modbus TCP, SunSpec) and MQTT protocol for cloud storage.
- Design and implementation of a portable embedded geolocation system.
- Design and optimization of the chassis for an eco-marathon vehicle.
- Design of an actuator for controlling the elevator of the AIRBUS A386 aircraft.
- Design of a table displacement system for a grooving machine.

Skills

- Managerial: Quality approach, Project & Risk management, Production management, Marketing techniques

- Software: C#, C/C++, Java, Python, SQL, Assembly, Git, TIA Portal, LABVIEW, Ansys Fluent, SolidWorks, MATLAB/Simulink, Gazebo, IsaacSim, ROS1/ROS2, Pixhawk, Ardupilot.

- Technical: Industrial automation (Grafcet), PLC programming (Ladder), Node-RED supervision, Embedded systems integration, Industrial communication (Modbus, CAN, Profibus, OPC UA, MQTT, I2C, SPI, UART), Robotics simulation & control, Sensors integration (IMU, Barometer, Sonar, GPS, LiDAR), Vision-based control, Data-driven control, State estimation, Sensor Fusion.

Languages

Arabic: Mother tongue
English: C1
French: C1

Conferences

Mathematics and Decision Conference *Dec 2024*
Rabat, Morocco
Conference on applied mathematics, optimization, statistics, machine learning, and deep learning.
Link: mathematicsanddecision.um6p.ma

Certificates

Python for Data Science and AI — IBM (ASLU7SZPC96A)
Supervised Machine Learning: Regression and Classification — DeepLearning.AI (PTPYY5KF2V25)
Computer Vision with Embedded ML — EdgeImpulse (865V7HH9U8US)
Modeling and Debugging Embedded Systems — Univ. of Colorado Boulder (WZPTQHBYBC47)
Programming with Cloud IoT Platforms — POSTECH (9NS53LE8EJXF)