



+52 222-176-2264



a01734565@exatec.tec.mx



ALAN MONDRAGÓN RIVAS

ABOUT ME

As a robotics and digital systems engineer, I am passionately driven by the potential of autonomous vehicles and embedded systems. My expertise lies in creating IA algorithms, efficient software and robust hardware implementations that enable seamless integration projects. I am eager to contribute my skills and knowledge to companies or projects at the forefront of this rapidly evolving field, where I can actively contribute to shaping the future of autonomous vehicles and embedded systems for a better future.

HARD SKILLS

- Software
- Hardware
- Advance AI
- Data Science
- Process optimization
- Embedded systems
- Signal analysis
- Networks & IoT

PROGRAMMING LANGUAGES

- Python, MicroPython
- C++, C (low-level code)
- Assemble language
- HTML5 + CSS3
- R, Matlab
- Verilog, VHDL
- SQL
- Java

SOFTWARE & TOOLS

- STM32Cube
- Ubuntu
- FreeRTOS
- Fusion 360
- FPGAs
- Simulink
- ROS
- Rviz
- AWS apps

LANGUAGES

- Spanish: Native
- English: Intermediate-Advance (B2)
- French: Basic (A1)

CERTIFICATIONS & COURSES

- 2023 | ITESM badges for **Embedded Systems** and **Robotic and Digital Intelligent Systems**
- 2023 | P4H Bionics **ExoSkeletons** and **BCI** webinars
- 2022 | AWS badges for **Cloud Computing** and **Machine Learning** Foundations
- 2019 | Certification in **Digital Marketing** Advance level by Mayahii

MY LINKS



EDUCATION

ITESM Campus Monterrey

2019 - 2023

B.Sc in **Robotics** and **Digital Systems Engineering** with **Concentration** in **Advanced AI for Data Science**

MAJOR PROJECTS

AMR with manipulator - Nvidia and Manchester Robotics

2023 | Feb - Jun

Autonomous Mobile Robot (**AMR**) with an **integrated gripper** for specific pick and place deliveries. For the manipulation system, was used a limit switch as presence flag and two servos for the gripper in order to pick up and delivered ArUco cubes on a designed area implemented on **STM32F103c8t6** at **low-level code** using serial communication **ROS** nodes for desired tasks. The navigation system consisted of a camera lidar, odometry, **ArUco markers**, **computer vision** and **bug o** algorithms implemented on a **Jetson Nano** using ROS for **real-time** tasks.

Interactive custom search map - INEGI

2022 | Aug - Dic

Dinamic interface with **INEGI** datasets using **NPL models** for a user **custom search**. Using Back-end and a Front-end interfaces built in HTML, CSS and JS and for the data visualization on a web map.

Self-Driving Robot - Nvidia and Manchester Robotics

2022 | Feb - Jun

Programming a **self-driving robot** using **CNNs** to identify traffic signals, computer vision to identify traffic light colors and rail identification for **line following** using a **PID controller** for motion correction. Implemented on Nvidia's **Jetson Nano** using **ROS** to manage resources and tasks in **real time**.

Line follower - JCA Technologies

2021 | Aug - Dic

Image **processing** for culture channels reonition for **path planning** for **autonomous agricultural robot** using Matlab and implementing a **PID controller** for a line follower with Similink.

MP4 Player System Recreation - INTEL

2021 | Feb - Jun

MP4 player system made with a **PyQt5** interface and an OLED Display communicated with a **Raspberry Pi** by I2C. Alongside with an **ATMEMGA328p** in **low-level code** to control 4x4 keyboard, buttons and a potentiometer for volume managed by **FreeRTOS**.

FPGA 2D shooter game - INTEL

2021 | Feb - Jun

Development of a shooter videogame in a simple interface created with **Processing 3** using an **Intel DE10-Lite FPGA** as a controller use the **accelerometer** to control the movement.

EXTRACURRICULAR ACTIVITIES

- Currently having a scholarship granted for best scores in a **P4H Bionics** webinar for a year.
- Former Intern in strategic data analysis projects at the Central-South regional level at Tec Campus Puebla.
- Former content planner at **edufindigital**.
- Former planning team for activities at **Special Olympics**.