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EDUCATION

Tecnologico de Monterrey-Campus Mty

Expected June 2025

Bachelor of Mechatronics Engineering

GPA 93/100

WORK EXPERIENCE

RoBorregos

Software Developer

November 2022-Present

- Active member of the RoBorregos Robotics Team, representing Tecnológico de Monterrey.
- Working on @Home Team, contributing to the development in the field of **computer vision** to create an autonomous butler for participation in RoboCup.

MAJOR PROJECTS

PI-Controlled Vehicle

Control System

August 2023-December 2023

- **Spearheaded** a project focused on the design, assembly, and testing of an autonomous vehicle with a **PI** (Proportional-Integral) Control System.
- Developed a **PI control system** for an **Inertial Measurement Unit (IMU)** aimed at accurately detecting and maintaining specific angles within the vehicle.
- **C++** and **Arduino** programming, with implementation of the **PI** control system using microcontrollers such as **Arduino Nano** and **ESP8266**

Robo Web

RoBorrego's Web Development Team

August 2023-Present

- Working on a admin page for RoBorregos.com, creating an interface to edit the team's projects using **NextJS**, **Tailwind**, **tRCP** and **Prisma**.
- Involved in the development of a redesign update for the main page using **Astro** and **Spline** for 3D animations in **Frontend**.

RoboCup @Home

Mexican Robotic Tournament 2023

January 2023-April 2023

- Development of pretrained models for **object detection** with **Python**, **Yolov5** and **Tensor Flow**.
- Automation to create datasets and Labeling using **COCO** and **Yolo annotation** through 3D files with **PolyCam** and **Python**.

John Deere – Proyecto Moldboard

Design and manufacturing

February 2023-May 2023

- Development in **SolidWorks** and manufacture of a functional prototype with **1060 aluminum** to create curvature in laminates avoiding unwanted deformations.
- Materials research and selection for prototype fabrication with **Ansys Grant EduPack**

SKILLS

Programming Languages:

C/C++, Python	3 years
JavaScript, Matlab	2 years
TypeScript,	1 years

CAD Design

SolidWorks	2 years
Fusion360	1 years

Languages

Spanish	Native
English	B2

Technologies

Git, GitHub, VSCode, Yolov5, TensorFlow, Arduino, STM32, ESP8266, HTML, CSS, Reactjs, TailwindCSS, MySQL, SQL, Node.js, Express, Next.js, Prisma, Restful API, Vercel,

Certifications

Scrum Fundamentals Certified	By SCRUM Study
JavaScript Course	By Codecademy
React Course	By Codecademy