Eduardo Hernández Valdez

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EDUCATION

Instituto Tecnológico y de Estudios Superiores de Monterrey Monterrey, México
*Engineering in Robotics and Digital Systems; **Avg 90.26/100*** *June 2026*

PrepaTec Eugenio Garza Lagüera Monterrey, México
*High School Diploma; **90/100*** *Aug 2019 – Jun 2022*

RESEARCH EXPERIENCE

VantTec - Self Driving Vehicle Monterrey, México
Embedded and Electronics Research and Development Team Leader *Jan 2023 – Present*

- Worked on pcb design regarding the vehicle's security and redundancy system requirements, using KiCAD. Translated prototypes to pcb boards needed as functional systems inside the vehicle. (STM32, Electric circuitry)
- Created a "from-scratch" python library to receive data from CANbus based sensors, such as rotary encoders and radars. To be used for the vehicle as an interface through ROS 2. (Briter Encoder, Ainstein T-79 Radar)

VantTec - Unmanned Surface Vehicle Monterrey, México
Perception Research and Development Member *Aug 2022 – Present*

- Created datasets for the training of a neural network to detect and classify objects in water, aiding to the vehicle's self navigation for the Roboboat competition, and published the results as an academic paper.
- Developed on-demand computer vision algorithms regarding the vehicle's needs in each section of the competition using OpenCV and ROS 1. (Dice number and color recognition, special symbology recollection, etc)
- Set up a dedicated hardware environment (Nvidia Jetson TX2 and Raspberry Pi) to facilitate Gazebo based modelling and perception systems of the USV in a Linux-based configuration.

PROJECTS

Tensorgba - Convolutional neural network interfacing with Gameboy Advance games. (Self-driving Mario Kart)
auxn - Implementation of a fantasy CPU VM (UXN) in Rust with the capability of running as an audio plugin.

WORK EXPERIENCE

Freelance Remote
General Purpose Programming – https://www.fiverr.com/eduarch42 *Summer 2019, 2020, 2021, 2022*

- Developed solutions in Data Science, Backend Development, GUI Applications, with an overall 4.9/5 rating.

AWARDS & ACHIEVEMENTS

HackMTY 2022 Hackathon - $1^{st} Place$ **-** Hardware box designed to store online identity, passwords, crypto, profiles.
HackMTY 2023 Hackathon - Honorific Mention **-** Edge LLM implementation of PDF indexing with source citing.
International Collegiate Programming Contest – Top 7 within ITESM MTY.
International Science Competition @ ITESM – Finalist in Computer Science category.
AWS Deep Racer – Participation in the AWS Deep Racer League and first generation at ITESM.

SKILLS

Programming: *Profiecient;* Python, Go. *Intermediate;* C, Rust, Javacript, Matlab. *Beginner;* C++
Technologies/Software: Linux, Docker, GNU Debugger, (C)Make, Git, KiCAD, ROS[1,2], FreeCAD, OpenCV
Languages: Spanish (Native), English (B2 - PTEG), German (Elementary)

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