Emmanuel Larralde Ortiz

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PROFILE

Mechatronics Engineer of Instituto Politécnico Nacional, CPU Design Verification Engineer at Intel, and Robotics Software Hobbyist. I like challenges, algorithms, computers, and robotics. I also author one IEEE paper.

WORK EXPERIENCE

CPU Design Verification Engineer **Intel Corporation** **(February 2023 – today)**

- Design Verification of a novel Branch Prediction Unit of a x86 CPU microarchitecture.
- Software development (python and C++) of a fine-grained simulator of the Branch Prediction Unit and the development of tools for performance analysis and CI/CD.

Technical Graduate Intern **Intel Corporation** **(January 2022 – January 2023)**

- Design Verification of the hardware accelerator for video compression (H.264, AV1, JPEG, etc.) of Intel Xeon Granite Rapids-D.

Robotics Software Engineering Intern **CIMAT** **(August 2022 – February 2023)**

- Development of autonomous driving software stacks for mobile robots.
- Design, development, and maintenance of mobile robots.

SKILLS

TECHNICAL SKILLS

PROGRAMMING LANGUAGES

Python
C/C++
Kotlin

TECHNOLOGIES

Productivity: Linux, shell scripting, Git & GitHub (with actions), Jenkins, Docker.
Robotics: ROS, OpenCV, NVIDIA Jetson, Gazebo, Simscape, Webots.
Embedded Systems: Microcontrollers, FPGAs, SBCs, embedded Linux.
Scientific: MATLAB, Mathematica, wolfram alpha, LaTeX.

SOFT SKILLS

Self-taught, Responsibility, Openness to feedback and Teamwork.

MAJOR PROJECTS

DonkieTown 2022

A low-cost experimental platform for research on Automated and Connected Vehicles.

- GitHub repository: https://github.com/L4rralde/DonkieTown
- DonkieNet: a retrained (transfer-learning) Mobilenet + SSD Neural Network for donkey-like teddy bears.
- Lane Following: k-d trees and vector fields.

Other projects:
AutoMiny Neurotrajectory (LiDAR + NN path planning); MCR Autonomous Drones (path following, object detection); and Atari Deep Q-Learning (CNN for Atari games trained with Reinforcement Learning). Learn more: https://l4rralde.github.io/projects.html

EDUCATION & CERTIFICATIONS

UPIITA-IPN
Bachelor of Engineering in Mechatronics Engineering. August 2017 – December 2022
GPA 94/100

Intel AI Everywhere
Intensive Deep Learning with applications. May 2023 – January 2024
Badge earned

AWARDS

First place at Mexican Tournament of Robotics (2023).

First place at Samsung's Solve for Tomorrow contest (2018).

Finalist candidate for the International Physics Olympiad (2017).

Silver Medal in the National Physics Olympiad (2016).