Emmanuel A. Larralde Ortiz

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PROFILE

Graduate Student in Computer Science and Mechatronics Engineer with experience in CPU Design Verification at Intel. Skilled in mobile robotics, digital electronics, and deep learning, with Python as my preferred language. Eager to contribute by applying technical expertise and creative problem-solving to build world-class systems.

WORK EXPERIENCE

CPU Design Verification Engineer **Intel Corporation** **(February 2023 – July 2024)**

- Collaborated on developing Intel's leading single-thread performance CPU microarchitecture, focusing on a high-performance Branch Prediction Unit (BPU).
- Developed a cycle-accurate reference model for the BPU, predominantly using Python, integrated with SystemVerilog and C++.
- Modelled from bottom-top, an enhanced version of Intel's Return Stack Buffer.
- Contributed to CI/CD with GitHub Actions to improve integration and testing efficiency.

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

- Contributed to the design verification of a video compression controller (H.264, AV1, JPEG) for Intel Xeon Granite Rapids-D processors, tailored for Edge applications.
- Ensured pre-Silicon design accuracy through functional testing and code coverage using SystemVerilog, Python, and Perl.

SKILLS

TECHNICAL SKILLS

PROGRAMMING LANGUAGES

Python
C/C++

TECHNOLOGIES

Productivity: Linux, shell scripting, Git & GitHub (with actions), Jenkins, Docker.
Robotics: ROS, OpenCV, NVIDIA Jetson, Gazebo, Simscape, Webots.
Machine Learning: Scikit-learn, Pytorch, TensorFlow, ONNx, Annotation Tools.
Scientific: MATLAB, Mathematica, wolfram alpha, LaTeX.

SOFT SKILLS

Self-directed, Reliable, Collaborative, receptive to feedback.

MAJOR PROJECTS

DonkieTown 2022

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

- DonkieNet: a retrained Mobilenet + SSD for object detection.
- Lane Following: Implemented k-d trees and vector fields for navigation.
- GitHub: DonkieTown Repository
- IEEE: DonkieTown paper

EDUCATION

CIMAT
Master of Science in Computer Science.
August 2024 – Present
GPA: in Progress

UPIITA-IPN
Bachelor of Engineering in Mechatronics Engineering.
Mx license number (cédula): 14162443
August 2017 – December 2022
GPA: 94/100

AWARDS & HONORS

- First place - Mexican Tournament of Robotics (2023).
- First place - Samsung Solve for Tomorrow contest (2018).
- Silver Medal - National Physics Olympiad (2016).