Israel Arroyo

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EDUCATION

Tec de Monterrey Graduating in June 2024
Bachelor in Robotics and Digital Systems Engineering *GPA 96/100*

MIT Summer 2022
NanoLab, introduction to microfabrication technology using the toolsets of MIT.nano

EXPERIENCE

Intel September 2021 – September 2022
Functional Validation Intern

- Automated 60 tests for improving multiple device scalability and cutting execution times by half.
- Co-developed **Python** library for internal test creation that automated environment detection, standard logging, argument parsing, register reading and dumping important information.
- Acquired technical communication skills by reading internal specification sheets and discussing my reasoning for possible test creation approaches.

MAJOR PROJECTS

Amazon Web Scrapper: https://github.com/iiarroyo/amazon-scrapper August 2022
Web scrapper application for Amazon

- Designed a web scrapper able to extract product prices and compare them, reducing search times, at least, by half.
- Implemented in **Python** using **beautiful soup** and **Regex.**

Autonomous Puzzlebot: https://github.com/iiarroyo/donatello_puzzlebot Apr – Jun 2022
Physical implementation of autonomous navigation in small car track with traffic signs and traffic lights.

- Implemented state machine tasked with reacting to traffic signs and lights, while following the road, with Manchester Robotics Puzzlebot kit and an **NVIDIA Jetson Nano.**
- Developed in discrete PI control in **Python**, using on device camera with OpenCV for detecting the road line.
- Designed and deployed a Convolutional Neural Network for real time traffic sign classification in **TensorFlow**.

Xarm6 Control: Feb – Apr 2022
Control of xarm6 for picking and placing color coded cubes.

- Simulated an xarm6 in Gazebo, tasked with sorting cubes by color, picking them up from a table and putting them on.
- Implemented in **Python,** using the **ROS tf2** as the back-end for position tracking and **MoveIt!** as a front-end tool for motion planning.

WAV Player: https://github.com/iiarroyo/WAV_player Mar – Jun 2021
Low-cost system for music reproduction

- Built a WAV file player with a microcontroller, able to display the current song information, pause, rewind, and skip songs.
- Implemented in **C and assembly** code for the Atmega2560 chip, with interruptions and serial communication with display.

Soft Processor: https://github.com/iiarroyo/VHDL_soft_processor Feb – Mar 2021
Basic RISC processor implementation in Intels DE10-Lite FPGA board

- Implemented Necessary components for basic processor: ALU, Program Counter, Main Memory, Registers, etc**.**
- Written in **VHDL** and **Verilog** for the Intel DE10-Lite board.

SKILLS

PROGRAMMING LANGUAGES

Fluent: Python
Comfortable: MATLAB, C/C++

TECHNOLOGIES

Machine learning, Git, Regex, OpenMP, Unix/Bash, Arduino, Firebase, ROS, Ubuntu, OpenCV, VHDL

LANGUAGES

107 TOEFL iBT score (ETS, 2021)

COURSES/CERTIFICATES

Fundamentals of Deep Learning (NVIDIA, 2022), Python: Programming Efficiently (LinkedIn, 2022), Fundamentals of Parallelism on Intel Architecture (Intel, 2021), Operating Systems and You (Google, 2021).

EXTRACURRICULAR ACTIVITIES

IBM Students Advocate 2022 program, Facebook ABCS Fall 2021 program, Robotics classes for children, Graded labs programming languages course (**Python, CUDA, Scheme and Data Structures in C++**).