AXEL ALVARENGA

axel-ra.github.io – linkedin.com/in/aamunoz15 – github.com/axel-ra– 832-941-9672

SKILLS

Programming Languages: Python, C++, Shell Scripting, SQL

Tools: Git, Unit testing, Linux (Ubuntu), AWS EC2 & RDS, VMWare

RELEVANT COURSEWORK

Operating Systems, Real-Time Systems (RTOS) and Embedded Programming, Cybersecurity, Computer Networks, Computer Organization & Architecture.

WORK EXPERIENCE

IT Intern   July 2023 - present

Borehole Seismic, LLC.

Houston, Texas

- Solved compilation error in internal Java software and modified the software to increase batch file upload limit, making business process over 5x faster and allowing workers to focus on other tasks for full-shifts.
- Designed and implemented file logging feature in internal Java software, as well as error-log parser in Python.
- Developed a feature for web application using HTML, JavaScript and Ruby.
- Applied multithreaded programming to decrease code runtime.
- Created a static web page to show projects' progress (used HTML, CSS, and Javascript).
- Built Python scripts to scan data, create a static page, and operate on thousands of files.
- Set up Linux and macOS cron jobs for running scripts on a schedule.
- Created a Python script to find a specific feature match among thousands of files.
- Performed tests in servers to-be-deployed, to test machine's reliability.
- Set up a Linux shared folder and a Linux virtual machine to display a static webpage.

ACADEMIC AND RESEARCH EXPERIENCE

Simulation of Multi-core Real-Time System Scheduling, University of Houston   Spring 2024
- Link to paper: tinyurl.com/mry46frj.
- Applied parallel and concurrent programming (multithreading and multiprocessing) to simulate task scheduling on a three-processor system in C++, using pthread library.
- Analyzed the simulation results using R/RStudio.
- Wrote a research paper using a two-column format to report the results.

Measuring Real-Time Tasks Execution Time in VxWorks, University of Houston   Spring 2024
- Programmed a kernel module in the C programming language to measure the execution time of preemptive, real-time tasks.
- Applied context-switching and operating systems task scheduling knowledge and system programming functions.
- Calculated execution times of tasks running different Matrix Multiplication algorithms.

Music Library Web Application, University of Houston   Fall 2023
- Developed some of the API endpoints to work with a MSSQL database using Node.js.
- Worked on web and database hosting using AWS EC2 Linux instances.
- Collaborated with team members to design the application's database schema.

EDUCATION

Bachelor of Science in Computer Science, University of Houston   December 2024 (expected)