ANGEL L GARCIA

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OBJECTIVES

Seeking an internship or co-op opportunity in computer engineering, with a focus on embedded systems, web development, and control/validation utilizing data analysis. Passionate about applying technical skills to real-world problems, and eager to gain hands-on experience in a professional setting.

RESEARCH

Single Events Effects (SEE) Data Post Processing GUI   *August 2022 - Current*
- Applied a base code written in python to design a BI GUI utilizing *Dash* by plotly. This BI shows the effects of Single Event Effects (SEE) obtained from TI for a TPS7H4010-SEP chip.
- Optimized code by implementing pandas, scipy, and numpy resulting in a lower runtime. Which was tested by using a labview file of around 250MB can be processed from around **10** seconds to **0.09** seconds using vectorization and other techniques.
- Designing a BI GUI with the intent to replace Spotfire, to increase the efficiency of the runtime by limiting the processes to specified signals.

Variable Command Response Type Rotorcraft Control System   *August 2022 - Current*
- Collaborated with a team of researchers on a Lockheed Martin-sponsored project to implement an automatic control system for a Align Trex 500L RC helicopter to increase ease of flight.
- Replaced the Microbeast flight controller with a Pixhawk cube 4 flight controller and integrated a GPS module to improve flight stability and precision.
- Developed and implemented 4 flight modes, using Ardupilot, improving the helicopter's ability to perform complex maneuvers.
- Utilized the Pixhawk 2 on one copter and the Cube Orange (the successor of the pixhawk), on another one to compare flight performance.

EDUCATION

University of Puerto Rico-Mayaguez   Expected Graduation: **May 2024**
- Computer Engineering, B.S.E
- **GPA: 2.97/4** *(General)* **| 3.02/4** *(Field)*
- **Areas of Emphasis:** Software Engineering applied to electronics Advanced Programming; Data Structures; Databases; Microprocessors; Operating systems
- **Technical Skills**: *Java, Python, C, Mips Assembly, Bash, PostgreSQL, HTML, CSS, JS.* Arduino, Linux, Circuit Design, PCB Design 3D Printing, Excel, Heroku, Flask, Figma

ORGANIZATIONS

IEEE Circuits and Systems Society (CAS) - UPRM Chapter
- Technical Advisor - Mentored and guided members through the specifics of technical subjects and designed tutorial programs.
- Assistant Webmaster - Innovated the Web design by aiding the main webmaster in the UI/UX design of the association website.

RELEVANT COURSEWORK AND PROJECTS

Memory Game | *JS, HTML, CSS, Figma* (tool)   March 2022
- Designed and developed a Memory Game based on the game "Simon Says" by utilizing flexbox on css, planned design on Figma, from which some css properties were utilized and basic event-based programming to trigger sound, player interaction and memory game pattern.

Pikaboard v1.0 | EasyEDA, JLPCB, Embedded systems, PCB design, 3D printing, 3D modeling   Jan 2023
- Developed and designed a custom-designed, programmable 3x5 macropad with dual encoders and a sleek LCD screen, powered by a using the ATMEGA32U4 microcontroller and using the latest software for I/O devices.
- Customized the device with QMK firmware, enabling easy programming and enhanced functionality
- Designed and printed a durable, stylish case for the macropad using FreeCAD and later on Fusion360 and PLA filament, optimizing the user experience and aesthetics

Linked Lists Library | *Java, Data Structures*   May 2021
- Created and implemented a comprehensive Data Structures library in Java, featuring a variety of list types, such as Indexed Lists and Doubly-Linked Lists, as well as other structures like queues and circular lists
- Conducted extensive testing and debugging, ensuring optimal performance and accurate index placement
- Streamlined data management and increased efficiency for future projects

Booking API | *Python, PostgreSQL, Databases*   December 2021
- Designed a booking system and created Entity-Relationship (ER) diagrams to articulate the design.
- Developed the backend API using PostgreSQL for the database and Python for the model and controller.
- Deployed, tested, and debugged the API using Heroku for deployment, its CLI for debugging, and Postman for testing all API endpoints.
- Collaborated with a team on frontend development, with a focus on testing from the backend perspective.

Small Collections of Useful Scripts | *Bash*   August 2021
- Developed a series of scripts for my arch Linux setup that allow me to easily trigger screenshots, control my computer's brightness and volume, and manage notifications.
- Leveraged my scripting skills to create a more personalized workflow, enabling me to quickly share screenshots with classmates during lectures or meetings.
- Saved an estimated 10-15 minutes per day on average by using my custom scripts, resulting in improved productivity and efficiency.

Room temperature checker using an ESP32 | *C++, AWS, NodeRed, Mosquito (MQTT Broker) IoT*   December, 2022
- Using technologies such as AWS to set a server, NodeRed an MQTT broker to set the communication between a device and server, and an ESP32 with a temperature sensor, me and another student obtained room temperatures of the Stefani classrooms via a voice service such as Siri, and designed a dashboard that tracks said temperatures and shows the average of each room