



# 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 science. Passionate about applying technical skills to real-world problems, and eager to gain hands-on experience in a professional setting.

## RESEARCH PROJECTS

- Single Events Effects (SEE) Data Post Processing GUI**August 2022 - Current
- Using given base code written in python by a TI engineer I am designing a BI GUI utilizing *Dash*. This BI shows the effects of Single Event Effects (SEE) obtained from TI for a TPS7H4010-SEP chip.
  - Using pandas, scipy and numpy I am also optimizing the given code so that runtime using a labview file of around 250MB can be processed from around 10 seconds to 0.09 seconds using vectorization and other techniques.
  - This BI GUI is designed with the intent to replace Spotfire, the current BI Texas Instruments uses due to the excessive overhead this software uses as well as excessive overhead this software uses as well as very slow runtime. The BI in development on the other hand has none of unnecessary overhead and unlike spotfire, it will only process the specified signals instead of all signals contained in the labview file.
- 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.

## EDUCATION

- University of Puerto Rico-Mayaguez**Expected Graduation: **May 2024**
- Computer Engineering, B.S.E
  - Areas of Emphasis:** Software Engineering applied to electronics Advanced Programming; Data Structures; Databases; Microprocessors; Operating systems
- GPA: 2.97 (General) | 3.02 (Field)**

## PROJECTS

- Memory Game** | *JS, HTML, CSS, Figma* (tool)March 2022
- 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, JLCPCB, 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 PLA filament, optimizing the user experience and aesthetics
- Linked Lists Library** | *Java, Data Structures*May 2022
- 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
- Frenzch.sh** | *Bash, CLI fetch*September 2022
- Developed CLI based tool which fetches basic computer specs and shows a nice ascii art based on terminal size. Applied different bash snippets from the [Bash Bible](#) as well as the use of piping awk and sed commands for string manipulation.
- Media control using Arduino Uno** | *Python, C++, Embedded Systems*July 2022
- Identified the I/O limitation of the Arduino Uno microcontroller, which limits its ability to control computer media using popular libraries such as HID.
  - Developed a unique method that allows the Uno to control computer media by using python scripts, thus bypassing the I/O limitation of the device.
  - Utilized the python serial library to read and execute commands based on the output generated by the Arduino, which is a series of debounced console prints written in C++
  - Implemented a 4-button keyboard to control volume, brightness, and select tracks on the computer
  - Demonstrated the viability of the method by successfully controlling media on a computer using the Arduino Uno and python scripts.
- 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.
- Economic Analysis Assignments** | *Excel*November 2022
- Applied different techniques to calculate the internal rate of return with and without tax and taking and without taking inflation theoretically, as well as selecting the best alternative from different theoretical products using excel.

**Technical Skills:** *Java, Python, C, Mips Assembly, Bash, PostgreSQL, HTML, CSS, JS. Arduino, Linux, Circuit Design, PCB Design 3D Printing, Excel, Heroku, Flask, Figma*