Marcos Enrique Mancia Jr.

marcosmancia77@gmail.com — jinnboi.github.io — github.com/Jinnboi

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Skills

Prog. Languages: C/C++, Assembly (AVR), Python, Java
Prog. Tools: STM32CubeIDE, Arduino IDE, Vim, Git/Github
Hardware: STM32, ESP32, Arduino, Raspberry Pi
Communication Protocols: UART, I2C, SPI, CAN

Experience

Student Researcher, Columbia Lab for Unconventional Electronics – New York, NY
2024

- Led development of the acoustic communication subsystem within a collaborative research project
- Designed and evaluated modulation schemes including AM, FM, and FSK for short-range acoustic links
- Characterized signal degradation due to distance and metallic interference using oscilloscopes and function generators
- Implemented and tested signal modulation on STM32 and Arduino MCUs using discrete analog components

Projects

Sorting Algorithm Visualizer   github.com/Jinnboi/SortingAlgorithmVisualizer

- Built a Java Swing application to visualize and compare 8 sorting algorithms with step-by-step animations
- Implemented multiple comparison- and non-comparison-based sorting algorithms with real-time rendering and performance metadata
- Structured the codebase for extensibility, enabling easy addition of new algorithms and visualization logic

Education

Columbia University – BS in Computer Engineering   2027