Jacobo Tello

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EDUCATION

Johns Hopkins University — **Baltimore, Maryland**

B.S. in Electrical Engineering, Minor in Robotics — *Expected Graduation, May 2027*

- **Concentrations:** Hardware Design / Robotics
- **GPA:** 3.53/4.00, *Dean's List*
- **Related Coursework:** Signals and Systems, Mastering Electronics, FPGA Synthesis, Digital System Fundamentals, Intro VLSI, Data Structures & Algorithms, Digital Signal Processing, Intermediate Programming (C/C++ OOP)

EXPERIENCE

Neuroengineering and Biomedical Instrumentation Laboratory — **Baltimore, Maryland**

Research Assistant — *May 2025 – Current*

- Wrote C++ firmware (Teensy) implementing an Adaptive Monte Carlo Sampling algorithm (AMCS) to improve speed and accuracy of flexible sensor arrays for haptic feedback in prosthetic systems, increasing frame rate by 40%.
- Wrote MATLAB script to simulate AMCS environment for parameter optimization, achieving a 60% RMSE decrease.
- Wrote Python script leveraging the OpenCV and Serial libraries for real-time data acquisition and visualization.

Blue Jay Racing: Baja SAE at Johns Hopkins University — **Baltimore, Maryland**

Data Acquisition Member — *Aug 2024 – May 2025*

- Designed schematic and 4-layer PCB layout in KiCad for a 10A, H-Bridge motor driver with ESD protection, enabling smooth 2-wheel/4-wheel steering control.
- Assembled all surface-mount components for board bring-up and validation.

PROJECTS

3T - APS CMOS Imager — **Baltimore, Maryland**

Team Member — *Feb 2025 – May 2025*

- Designed and simulated a 3T-APS pixel sensor and 4-bit shift register using Cadence Virtuoso.
- Developed and verified a 4×4 array of 3T-APS pixels with integrated shift registers through schematic-level simulation.

Sonar Ranging System — **Baltimore, Maryland**

Individual Project — *May 2025 – Aug 2025*

- Designed mixed-signal PCB for a pulse-echo sonar ranging system, integrating a dedicated pulser IC for transducer excitation alongside a sensitive analog front-end with variable gain amplification (VGA).
- Developed a PID-based automatic gain control algorithm (AGC) feedback loop to extend the dynamic range by compensating for signal attenuation over distance.

Chess Game in C++ — **Baltimore, Maryland**

Team Member — *Oct 2024 – Dec 2024*

- Designed and implemented a chess game in pure C++, applying object-oriented programming principles, templates, and abstract classes to model game logic and piece behavior.
- Developed efficient class hierarchies and iterators to manage board state, validate moves, and enforce game rules.

DTMF Signal Processing and Detection System — **Baltimore, Maryland**

Individual Project — *Oct 204 – Dec 2024*

- Developed a DTMF signal encoding and decoding system in MATLAB by using Fast Fourier Transforms.

ACTIVITIES AND LEADERSHIP

Johns Hopkins Department of Physics & Astronomy — **Baltimore, Maryland**

Teaching Assistant for AS.171.102 & AS.171.108 (General Physics I & II for Physical Science Majors) — *Jan 2025 – Current*

International Students at Hopkins — **Baltimore, Maryland**

Professional Development Committee Director — *Aug 2025– Current*

- Lead team in making professional development events for international students, including student mixers with faculty and Zoom panels with medical professionals.

SKILLS

Programming: MATLAB, C++, Java, Python, C, VHDL

Tools: Kicad, LTSPICE, Git, Cadence Virtuoso, Linux/Unix, Microsoft Office (Excel, Word, Powerpoint), MacOs, Windows