Jacob Tom

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Education

Harvard University — Cambridge, MA
Bachelor of Science, Electrical Engineering. GPA 4.0 — June 2027
Relevant Coursework: Computing Hardware; Systems and Control Theory; Circuits and Devices; Signals (current); Electromagnetism Physics; Wave Physics (audio, optics); Introductory Computer Science
Honors: Detur Book Prize (high academic standing award), John Harvard Scholarship, Harvard Faculty Scholarship (x2)

Loyola High School — Los Angeles, CA
GPA: 4.56 — June 2023

Skills

Hardware Development: Analog circuit design, PCB design, switching converters, lab equipment (oscilloscopes, etc.), LTspice, SolidWorks
Software Development: Python, System Verilog, MATLAB, C++

Projects

Multi-Cycle MIPS Processor (on FPGA Board) — August - December 2025

- Implemented entire multi-cycle MIPS processor (System Verilog), ALU inside MIPS processor using only logic gates (System Verilog) and assembler (Python)
- Supported R-type I-type J-type instructions
- ALU supported basic arithmetic, shift operations, comparison operation, error flags (overflow, zero, equal)

Interferometry-based Optical Profilometer — August - December 2025

- Designed optical profilometer using commercial lenses and laser source on optical table
- Measured surface profiles at the scale of 100s of nanometers
- Implemented digital signal processing algorithm to measure profile from interference patterns (Python)

Mars Rover (Harvard University Robotics Club) — August 2024 - Present

- Worked in a team of 5-6 members to create a rover for the University Rover Challenge
- Designed a power distribution board in KiCAD, included buck converters, fuses, WAGO connectors
- Created and organized full-rover circuit diagram

Decibel Meter — January - May 2025

- Arduino-based sound safety device with LED screen, 3D printed case, microphone
- Used Arduino ADC and linear approximation to convert voltage to decibels

Miniature Basketball Robot — January - May 2024

- Worked in a team of 4 to design (SolidWorks CAD) and create a basketball robot (rover with arm)
- Machined robot from basic materials using CNC mill (generated G-Code), lathe, laser cutter
- Won 2nd Place in Intro Mechanical Engineering tournament (1v1 style matches, 16 teams)

Work Experience

Harvard Recreation — Cambridge, MA
Rock Wall Manager — October 2024 - Current

- Led transition of Harvard Climbing Wall from independent organization to university activity (organization, renovations and upgrades, and cleaning)
- Organized climbing events and social activities