

JOAQUIN GONZALEZ-SALGADO

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EDUCATION

Harvey Mudd College, Claremont, California
B.S. in Engineering (Electrical & Computer Engineering)
GPA: 3.7 -- Deans List

May 2028

SKILLS

Python, Solidworks/Fusion CAD, Arduino IDE, ESP32, Verilog, VHDL, C, C++, Assembly, Altium Designer, KiCad, Nordic RF, PCB Design, FPGA Development, SMT Soldering, Quartus Prime, QuestaSim, LabVIEW, Multimeter, Function/Waveform Generator, TIG/MIG Welding, Waterjet Cutting, (CNC) Lathe, (CNC) Mill, Laser Cutting, 3D Printing (FDM, SLA, SLS), Excel

RESEARCH EXPERIENCE

VLSI Design & Verification Researcher, Clay-Wolkin Fellowship, CA December 2025 - Present

- Developed familiarity with RISC-V microprocessor design, verification, and certification workflows through analysis of open-source CORE-V Wally architecture and RISC-V specifications.
- Worked with Python, SystemVerilog, and RISC-V assembly concepts to design tests, explore coverage metrics, and understand microprocessor verification methodologies.
- Applied instruction-set simulation, SystemVerilog simulation, and coverage analysis techniques to understand RISC-V specifications, debug test behavior, and evaluate microprocessor verification workflows

Hardware Researcher, USDA: Electropenetography (EPG) Amplifiers, CA August 2025 - Present

- Designed and tested low-noise, field-deployable analog amplifiers for electropenetography (EPG) to monitor feeding behavior of disease-vector insects, supporting agricultural and ecological research.
- Developed microcontroller firmware and Python-based software to acquire, process, and visualize high-sensitivity analog signals from insect feeding experiments.
- Applied benchtop electronics skills including oscilloscopes, function generators, and power supplies to prototype circuits, optimize signal quality, and improve reliability for field deployment

Physics Researcher, Drone FPGA Radio-Telescope Beam Mapping, CA August 2024 - August 2025

- Operated and programmed a large hexacopter drone carrying a custom (Xilinx FPGA) RF transmitter to calibrate and map a clear beam pattern of a ground-based radio telescope, modeling a software defined radio.
- Developed FPGA-based software-defined radio system with Verilog and Python, transmitting and receiving GHz-wideband signals for DSP analysis via Fast Fourier Transforms (FFTs).
- Configured hardware and software systems include drone flight control (PX4/Ardupilot) GPS synchronization, RF amplification, and Python-based data analysis/visualization.

WORK EXPERIENCE

Machine Shop Proctor & Shop Improvement, Harvey Mudd College, CA August 2025 - Present

- Supervised safe operation of machining equipment (mills, lathes, bandsaw) by student users, ensuring adherence to shop safety protocols and best practices.
- Trained peers in proper tool usage, machining techniques, as well as fabrication and tolerancing.
- Learned how to use the Big Brother CNC Mill, spot welder, and other advanced machinery.

PROJECTS

E4 Project, Digital Logic Demonstration Board January 2025 - May 2025

- Designed and assembled a logic-gate demonstration board using 74HC Series integrated circuits, a 555 timer, and a potentiometer-based clock input.
- Engineered intuitive controls with input switches, banana cables and ports for adjustability, and LEDs to clearly display output states
- Delivered a durable, lecture teaching tool now used by Professor Stone for the Digital Logic and Computer Architecture Course.

COURSEWORK

(Current and Planned): Materials Engineering, Continuum Mechanics, Applied Math for Engineering, Electric Vehicle Design Lab, Digital Elec & Computer Engineering, Electronics & Magnetic Circuits/Devices, Engineering Systems, Electromagnetic Theory, Experimental Engineering, Engineering Design and Manufacturing