Ricardo Gonzales

(805) 218-0998 zricksaii@gmail.com US Citizen

Education

University of California, Davis Expected June 2027

- Bachelor of Science in Electrical and Computer Engineering
- IEEE Member, AvenueE Scholar, Trio SSS Member, EOP Member, SHPE Member
- GPA 3.75, Dean's Honor List

Skills

Programming: Python, MATLAB, C, C++, Verilog, x86 Assembly, Java/JavaScript, Git/GitHub, RISC-V, CSS, HTML, SQL
Hardware: Circuit design, OrCAD, PSpice, Multisim, FPGA, Arduino, microcontrollers, lasers, mirrors, spectrometers, filters, computer hardware, oscilloscopes, Raspberry Pi, MOS transistors
Laboratory & Fabrication: Cleanroom, optical alignment, photoluminescence spectroscopy, oscilloscope, function generator, multimeter, KLayout, SolidWorks, Blender, data acquisition, process monitoring, photolithography

Experience

Photonics Research Assistant, Boston University June 2025 - August 2025

- Performed photolithography and nanofabrication of NEMS resonators in a cleanroom environment
- Applied machine learning to model device behavior from interferometer data from a photonics lab
- Built Python frameworks to streamline nanoscale data acquisition and analysis using digital signal processing

Machine Learning Research Assistant, University of California, Davis April 2025 - August 2025

- Created a computer vision pipeline for automated defect detection in experimental earthquake engineering datasets
- Applied image processing methods to improve the localization and classification of modeled earthquake models
- Optimized workflows for large datasets, supporting yield inspection automation

Photonics Research Assistant, University of California, Santa Barbara June 2024 - August 2024

- Performed cleanroom fabrication and photoluminescence spectroscopy of 2D materials and quantum photonics
- Conducted optical alignment of lasers and spectrometers to enhance photon collection of experimental data
- Designed chip layouts and components with KLayout and SolidWorks for cleanroom chip nanofabrication

Coursework

Algorithm Design & Analysis 1 & II, MOS Circuit Design, Electromagnetics I, Digital Signals & Systems I, Microcontrollers & Embedded Systems, Analog Signal Systems, Computer Architecture, Semiconductor and Device Physics

Projects

Photoluminescence Spectroscopy Setup

- Designed and assembled an optical system with lasers, mirrors, filters, and a spectrometer for cleanroom nanofabrication research
- Improved photon collection efficiency through system redesign and precise optical alignment using oscilloscopes
- Created CAD and 3D models to document the setup and support device development presentations

Silicon Wafer Fabrication

- Fabricated a patterned silicon wafer using photolithography and cleanroom nanofabrication processes
- Performed critical steps, including substrate preparation, thin-film deposition, and alignment for high-precision pattern transfer
- Delivered a functional wafer prototype that demonstrated proficiency in nanofabrication workflows and semiconductor process techniques

Self-Detected Parking Guidance System

- Designed an embedded system with sensors/microcontrollers to detect parking availability in real time using RISC-V
- Programmed Arduino/Verilog to process sensor signals and activate visual guidance outputs
- Improved system reliability and scalability using computer vision for smart-parking applications

Awards & Certifications

- SHPE Northrop Grumman Scholarship Recipient
- International Tutor Training Program Certification (ITTPC) Level I, II
- Altium Designer Essentials Certification