# ZOE JARAMILLO

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## EDUCATION

**California Polytechnic State University, San Luis Obispo** Expected Graduation: **June 2028**
Electrical Engineering B.S. *San Luis Obispo, CA*
**Relevant Coursework:** Electric Circuit Analysis I, Electronics Manufacturing and Circuit Analysis Laboratory, Digital Design, IT Essentials, Linear Analysis I, Fundamentals of Computer Science

## RESEARCH EXPERIENCE

**Cal Poly Racing FSAE** San Luis Obispo, CA
*Wire Harnessing Team* *Sept. 2024 - Present*

- Contributed to the design, CAD modeling, and assembly of the front wire harness for the Formula SAE car using **Siemens NX** and **Rapid Harness**, to improve the layout of electrical components and refine system connectivity to boost performance and reliability.
- Acquired experience in splicing wires, selecting connectors, and using Rapid Harness to design the front harness, improving the efficiency and precision of **wire routing** and connections.

**Cal Poly Society of Women Engineers** San Luis Obispo, CA
*Club Mentee* *Sept. 2024 - Present*

- Engaged in **mentorship initiatives** and partnered with local schools to inspire young girls to explore and pursue careers in the field of engineering. Participated in workshops, speaker events, and networking opportunities to engage with industry professionals, gain insights into engineering careers, and enhance my **leadership skills**.

**COSMOS Student Researcher** UC San Diego
*Autonomous Vehicles* *July 2023 - Aug. 2023*

- Learned foundational knowledge in **autonomous systems** under the mentorship of Professor Jack Silberman.
- Collaborated in a team of 3 to create and implement an autonomous RC vehicle utilizing the DonkeyCar AI Framework, human behavior cloning, OpenCV, and Embedded Linux, successfully becoming the **first team of six** to achieve autonomous lane-following.
- Engineered and fabricated a custom base plate and LIDAR mount using **OnShape, 3D modeling, and laser cutting**, while also programming and integrating hardware and software.

## PROJECTS

**4-bit DAC PCB Design** *May 2025 - June 2025*

- Designed and fabricated a 4-bit Weighted Resistor DAC, using **LTspice** for simulation and **EAGLE** for PCB layout, integrated with **Arduino** for real-time audio signal conversion.
- Validated system performance through **oscilloscope analysis** and demonstrated proficiency in mixed-signal design, embedded testing, and sustainable hardware development.

**Slot Machine Game System** *May 2025 - June 2025*

- Built a complete slot machine game system on a Basys 3 FPGA using **SystemVerilog**, integrating a custom FSM, comparator, random generator, LED drivers, and win detection logic.
- Collaborated in a 3-person team to debug and implement modules, including state machines and one-shot timing extensions for buzzer and LED signaling, verified through **behavioral simulations and hardware testing**.

## TECHNICAL SKILLS

**Languages:** C, Python, Java, HTML, SystemVerilog, MATLAB
**Software:** LTspice, Altium Designer, Autodesk Fusion360, SolidWorks, Siemens NX, OnShape, Blender, Tinkercad, Rapid Harness, EAGLE
**Fabrication:** 3D Printing, Laser Cutting, Machining, Milling, Lathing, Welding, Soldering, Rapid Prototyping
**Design:** PCB Design, Electronic Design, 3D Modeling, CAD, Circuitry
**Systems:** Embedded Linux, OpenCV, Machine Learning, Computer Science, Robotics, Autonomous Vehicles, VEX Robotics
**Tools:** Microsoft Office (Word, Excel, PowerPoint), Adobe Suite