

Luke Trusheim

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Education

California Polytechnic University San Luis Obispo

Expected Jun. 2026

Bachelor of Science in Computer Engineering

GPA: 3.87 | 7x Dean's List

Relevant Coursework: Introduction to Computer Security, Design and Analysis of Algorithms, Project-Based OOP & Design, Data Structures, Systems Programming, Computer Hardware Architecture and Design, Computer Design and Assembly Language, Digital Signals & Systems, Circuits Series, Linear Analysis, Writing Arguments about STEM

Relevant Skills

Programming Languages: Java, Python, C, SystemVerilog, Assembly (RISC-V), HTML/CSS, MATLAB

Software: Vivado, Unix, Git, LTSpice

Academic Projects

Pipelined and Cached RISC-V CPU on FPGA Board

Hardware Design | Sept. 2024 - Dec. 2024

- Implemented a five-stage pipeline capable of handling data/control hazards by stalling, forwarding, and flushing
- Designed critical CPU components using SystemVerilog that adhered to RISC-V 32-bit instruction set architecture
- Integrated I/O and interrupt functionality to interact with seven-segment display, buttons, and switches
- Developed matrix multiplication assembly language program to benchmark and validate CPU operations

Dual Tone Multi-Frequency Decoder

Digital Signal Processing | Sept. 2024 - Dec. 2024

- Designed DTMF decoder in Python using integer-based digital signal processing for computational efficiency
- Utilizing MATLAB, designed band-pass and low-pass filters by pole/zero placement for optimal frequency response
- Minimized inter-signal interference to 7.8% with 7 bits of computation for signal with 50ms between symbols

Refactoring + New Feature in Large Codebase

OOP | Structures & Algorithms | Sept. 2023 - Dec. 2023

- Addressed low cohesion in large Java codebase using abstract classes and interfaces for a more flexible structure
- Successfully implemented design changes without compromising program functionality via thorough testing
- Designed and integrated new features into the codebase, ensuring compatibility and maintaining existing functionality

Work Experience

Computer Engineering Tutor

San Luis Obispo, CA

Computer Engineering Department at Cal Poly SLO

Nov. 2024 - Present

- Clarified complex topics in programming, computer architecture, signal processing, and embedded systems
- Supported students in debugging code, optimizing algorithms, and successfully completing projects

Leadership Experience

Orientation Leader

San Luis Obispo, CA

Cal Poly New Student Transition Programs

Jun. 2023 – Sept. 2023

- Developed, implemented, and co-led a comprehensive week-long activity schedule for incoming students
- Facilitated group discussions and team-building exercises, fostering an inclusive environment for 20+ new students

President

San Luis Obispo, CA

Cal Poly IHC (Inter-housing Council)

Oct. 2022 – Jun. 2023

- Campaigned and elected for the university's residential student government, serving over 2,000 students
- Awarded "Council of the Year" for exceptional leadership, dedication, and enhancing campus life
- Led weekly meetings, oversaw 10+ events, managed quarterly budget, and addressed residents' concerns
- Provided strategic direction to vice presidents and representatives for team cohesion