

# André Salvador Winkel

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## EDUCATION

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### University of California, Riverside

Electrical Engineering B.S.

Riverside, CA

2027

Relevant Courses: Circuit Design/Analysis, Digital Signal Processing, Computer Vision, Embedded Systems, Computational Imaging, Digital IC Design, Communication Systems

## EXPERIENCE

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### Planet Labs

Intern, Electrical Engineering

San Francisco, CA

Summer 2025

- Designed & tested high-speed digital PCBs; compute hardware for Earth-imaging satellites
- Performed signal integrity analysis and hardware-in-the-loop testing for 6Gbps+ SerDes links
- Worked crossfunctionally to streamline bring-up and validation for manufacturing and new designs

### Highlander Space Program

Electrical Engineer, Payload

Riverside, CA

May 2025 – present

- Designing high-speed NIR imaging hardware for liquid rocket payload
- Leading design for computational imaging & telemetry hardware for reconnaissance
- Defining new 2U CubeSat project scope and initial hardware design, leading team of 10

### FSAE Highlander Racing

Electrical Engineer

Riverside, CA

September 2023 – March 2025

- Designed and assembled 2 high-voltage battery adjacent PCBs for a competition EV
- Simulated in-house power designs using LTspice, electric motor load simulation
- Implemented CAN bus communication on STM32 microcontrollers for telemetry

### California Air Resources Board

PEMS Intern

Riverside, CA

Winter 2024

- Automated the ingestion of PEMS sensor data across 4 test vehicles using Python and MATLAB
- Applied digital filtering techniques to raw exhaust telemetry to eliminate sensor noise

## PROJECTS

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### Raspberry Pi 5 Hardware Acceleration HAT+

- Designed a 8-layer PCB integrating a Xilinx Artix-7 FPGA (XC7A100T) for hardware-accelerated tasks
- 512MB DDR3L memory interface, skew matching and signal integrity tuning for 800MT/s operation
- Developing RTL for DMA-based data transfer over PCIe utilizing FPGA MGTs

### CUTIE-CITRUS | CubeSat Data Manager

- Developed a 4-layer carrier board for the Raspberry Pi Compute Module 5 for CubeSat
- Routed controlled-impedance, length-matched differential pairs for MIPI CSI-2 and PCIe NVMe
- Designing second revision, implementing AMD Zynq SoC and AD9363 for gigabit downlink

## TECHNICAL SKILLS

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**EDA & Instrumentation** Altium Designer, KiCad, Vivado, LTspice, Oscilloscopes, VNAs, Logic Analyzers, Rework  
**Languages & Software** C/C++, Python, STM32Cube, UNIX/Linux, VSCode, MATLAB, Git, Jira, Confluence  
**Protocols & Interfaces** PCIe, DDR, SpaceFibre/Wire, MIPI CSI-2, Ethernet, I<sup>2</sup>C, Q/SPI, UART, JTAG, SWD