Adam Barakat

209-720-7655 | barakatadam65@gmail.com | linkedin.com/in/ab-barakat | SOLIDWORKS: sw.adambarakat.com

Education

University of California, Davis | B.S., Computer Engineering — Expected 2027

Core Skills

Electromechanical Diagnostic & Repair · PLC/SCADA Fundamentals · Python · FPGA · Hand & Power Tools · Verilog RTL
I/O Documentation · Electrical Schematics · SOLIDWORKS / CAD · Hands-On Troubleshooting · Mechanical Assembly

Experience

Incoming Process & Controls Engineer Intern | TM Process & Controls — Jun 2026 - Aug 2026

Skills: PLC/HMI Development · I/O Documentation · P&ID Interpretation · Equipment Troubleshooting & Repair

- Expected to support automation projects using Allen-Bradley PLC/HMI, SCADA, electrical documentation skills, and I/O records while troubleshooting customer-site issues for maximum OEE/MTBF and minimum downtime/MTTR

Automotive Field Service Technician | Rapid Valley Roadside — Jan 2024 - Nov 2024

Skills: Field Diagnostics · Fault Isolation · Wiring Repair · Time-critical Repairs · Subsystem Diagnostics

- Diagnosed electrical and mechanical faults across 200+ field calls, consistently restoring disabled vehicles
- Identified root causes under time constraints and executed field repairs without shop support, preventing escalation
- Used scanners and meters to independently isolate and repair wiring, battery, and subsystem failures

Automotive Mechanic | Central Valley European — Jun 2022 - Nov 2024

Skills: Electromechanical Diagnosis · Wiring Diagrams · Digital Multimeters · Engine Timing · Mechanical Assembly

- Completed complex German vehicle repairs from diagnosis to delivery, including timing faults, engine swaps, and driveline work, earning >95% positive reviews and repeat customers
- Interpreted service data, wiring diagrams, and repair procedures to plan jobs and avoid repeat failures
- Used hand, power, and specialty tools to complete precise mechanical assembly, torque procedures, preventative maintenance and component replacement on complex German vehicle systems

Engineering Projects

Personal Project | SOLIDWORKS (CAD) RF Hardware Assembly (sw.adambarakat.com)

Tech: SOLIDWORKS · Part Modeling · Custom Thread Profiles · Mate Constraints · Micrometer Measurement · Rendering · CAD

- Designed a SOLIDWORKS RF enclosure assembly from caliper-measured LNA, diplexer, Alfa adapter, and SMA hardware, achieving verified physical fit across connector, cable, and mounting interfaces
- Modeled custom 1/4-36 UNS SMA connectors using thread profiles, multi-body geometry, reference planes, and separate conductor/dielectric bodies, improving accuracy of connector placement and enclosure fit-up

Personal Project | LiDAR Beam Characterization Test System

Tech: Verilog RTL · Mixed-signal Debugging · FPGA Timing · Analog Front-end Design · Oscilloscopes · Python

- Designed and debugged a mixed-signal LiDAR capture system with 100+ MHz analog bandwidth, achieving high signal integrity with ~99% fidelity compared to reference signals
- Implemented FPGA timing logic (Verilog) to detect 10 ns pulse edges, enabling capture of pulsed lasers up to 50 MHz
- Engineered a high-sensitivity comparator stage with adjustable threshold to convert sub-100 mV photodiode signals into 3.3 V CMOS-compatible logic while rejecting background noise across a 30 dB range
- Integrated FPGA, Pi, and analog circuitry into a portable diagnostic system with audio alarms for practical field testing

Personal Project | Bare-Metal Firmware Development (STM32, C)

Tech: C · STM32 · UART/GPIO/Timers · Interrupt-driven Firmware · Real-time Control · Logic Analyzers

- Programmed STM32 firmware for UART, GPIO, and timers, reducing binary footprint by ~20% by bypassing HAL
- Implemented interrupt-driven logic to achieve deterministic, microsecond-scale timing behavior, ensuring zero missed hardware triggers across hours of continuous system testing
- Verified system-wide signal integrity and timing constraints through 40+ bench tests using oscilloscopes and logic analyzers, confirming sub-microsecond accuracy for all peripheral communications