Matthew Cranny

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EXPERIENCE

PDF Solutions March 2026 – Present
Systems Engineer *San Jose, CA*

- Built Python signal-processing and LabVIEW pipelines to process raw SEM data and characterize settling dynamics for SEM stage control hardware, integrating TCP/UDP data acquisition to tune inertia compensation and reduce time to tolerance from 300 ns to 20 ns
- Developed automated board test and calibration framework across six board families, covering clock phase, frequency, gain, and AC/DC measurements through a Python test engine, PyQt6 GUI, and SCPI/GPIB/NI-DAQmx drivers
- Designed a Flask/SQLite system of record for firmware and hardware revisions across 90+ boards, with admin CRUD and SQL/CSV export tools that exposed configuration conflicts and informed fleet deployment decisions
- Recovered and validated 5 to 6 unresponsive boards per week through cleanroom handling, AMD Vivado FPGA debugging, register probing, and targeted firmware updates before reinstallation

Amazon May 2025 – July 2025
Data Analyst Intern *Turlock, CA*

- Built Python API and scraper pipelines to detect anomalous inventory behavior across fulfillment center systems, migrating execution to AWS Lambda, EventBridge, and Secrets Manager while reducing estimated vendor transaction risk by $100,000 annually
- Extended anomaly detection models to predict which inventory items were likely to become anomalous, enabling preemptive inspection and intervention before issues escalated
- Developed VBA labor management automation deployed across fulfillment centers, eliminating over 120 hours of manual reporting per week

Space Sciences Laboratory, UC Berkeley June 2024 – May 2025
Aerospace Engineering Intern *Berkeley, CA*

- Modeled and iterated flight-qualified structural components in SolidWorks for LuSEE-Night, a NASA-funded lunar far side radio observatory mission that achieved flight certification
- Fabricated and assembled structural components across concurrent satellite programs in a cleanroom environment, maintaining contamination control and handling protocols
- Built and installed wiring harnesses, assembled high-voltage step-up converter circuits, and mounted passive electrical components across flight hardware subsystems

PROJECTS

Combat Robotics at Berkeley August 2023 – May 2025
Technical Lead

- Built the complete power and control system for weapon and drive subsystems, integrating ESCs, brushless motors, custom PCB harnesses, and battery management into a compact, competition-ready electrical architecture
- Engineered armor and weapon assemblies from hardened steel and HDPE; designed internal component layout and wiring paths to isolate electronics from combat-induced shock, vibration, and packaging constraints

EDUCATION

University of California, Berkeley Berkeley, CA
B.A. Physics *May 2026*

Coursework: Quantum Mechanics, Electromagnetism, Optics, Advanced Electrical Laboratory, Thermal Physics

SKILLS

Languages: Python, Bash, SQL, VBA, Verilog

Software Tools: GitHub, SourceTree, AWS, Linux, LabVIEW, AMD Vivado, SolidWorks, Flask, PyQt6, SQLite

Hardware/Test: ATE, SCPI/GPIB, NI-DAQmx, PyVISA, Keysight/Siglent/Rigol scopes, board calibration, firmware flashing, SEM stage control, Semiconductor Wafer Metrology