Jonathan Earp

UAS / Robotics Builder - Mechanical Engineering Candidate
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SUMMARY

- FAA Part 107 Remote Pilot; hands-on UAS builder focused on integration, tuning, and flight-test iteration (build-test-fix).
- Experience across Betaflight + ArduPilot stacks; strong hardware troubleshooting and data-driven iteration.
- Applied research experience at Lawrence Berkeley National Laboratory and UPenn's Singh Center, building and testing real-world sensing/prototype systems in lab and field-like conditions.

EDUCATION

The Head-Royce School — Oakland, CA (3.80 Unweighted/4.38 Weighted GPA)
Expected Graduation: 2026
Relevant Coursework: Honors Calculus, Honors Advanced Physics, Honors Advanced Chemistry, Honors Data Science

TECHNICAL SKILLS

UAS / Avionics: Betaflight, ArduPilot; ExpressLRS; analog + DJI video; GPS/compass/barometer/IMU setup
Controls / Data: PID tuning; flight log review; data-driven iteration and troubleshooting
Mechanical / CAD: Onshape, Fusion 360; 3D printing; CNC + laser cutting; shop tools (bandsaw, drill press)
Programming: Python (scripting + data), JavaScript/CSS; light web tools/dashboards

EXPERIENCE

The Head-Royce School — Technology Office Assistant
IT + hardware support | Oakland, CA | June 2023 - Present
- Troubleshot student/staff devices and peripherals; resolved hardware/software issues quickly and documented fixes.
- Supported AV and classroom tech setups (displays, audio, connections) and provided on-the-spot help during events.
- Practiced customer-focused debugging: reproduce issues, isolate root cause, and communicate clear next steps.

Lawrence Berkeley National Laboratory — Student Research Assistant
Indoor air quality + childhood asthma study | Berkeley, CA | April 2024 – August 2024
- Built a stove-mounted camera + air-quality sensor suite to capture cooking activity and pollutant data in real homes.
- Improved reliability across varied kitchens (lighting, layouts, ventilation) by iterating mounts, wiring, and capture workflows.
- Created an AI-assisted labeling pipeline to pair images with sensor measurements for dataset creation and analysis.

University of Pennsylvania (Singh Center for Nanotechnology) — ESAP Participant
Nanotechnology + fabrication program | Project-based engineering | Summer 2025
- Built an adaptive audio control device with Professor Gyuseok Kim, graduate TAs, and peers; iterated from prototype to demo.
- Practiced research workflow: define requirements, test, document results, and present to technical mentors.

PROJECTS

FPV / UAS Builds (Personal Projects) — Ongoing
- Built and fly ~8 drones (45mm–5in) across Betaflight + ArduPilot; integrate powertrain, FC stack, and payloads.
- Set up and calibrate GPS, compass, barometer, and IMUs; tune PIDs and iterate using flight behavior + logs.
- 400+ flight hours across FPV and camera drones; maintain and improve builds over time through systematic troubleshooting.

Head-Royce VEX Robotics — Captain
- Designed and built mechanisms; partnered with programmers to tune performance using PID and iterative testing.
- Led team execution during a workspace move by implementing schedules, check-in procedures, and clearer roles.
- Competitive results: State Champion; VEX Worlds Division Finalist; 2× Excellence, 3× Build, 2× Amaze, 1× Design, 2× Tournament Champion.

LEADERSHIP

- Medical Advocacy (President): led communitywide health efforts at 1,000-student school; ran blood drive (120 donors) and hospital partnership.
- Boy Scouts (Senior Patrol Leader; Eagle Project): built inclusive troop systems; taught a month-long elementary robotics class and left reusable curriculum.