Jaime Rebollar

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EDUCATION

Stanford University — Stanford, CA | GPA: 3.75 **Expected Jun 2029**
B.S. in Mechanical Engineering and Computer Science | **Honors:** QuestBridge, Edison, and HSF Scholar
Selected Coursework: Design for Extreme Affordability I–II, Solid Mechanics, Programming Abstractions, ODEs & PDEs
In Progress: Building AI-Enabled Robots, Computer Systems from the Ground Up, Dynamics, Applied Machine Learning

PROFESSIONAL EXPERIENCE

Southern California Edison — Pomona, CA **Jun 2026 – Sep 2026**
Transmission & Distribution Technical Project Management Intern
- Developed an on-device Python RAG system (Qwen3-VL 8B on llama.cpp) with OCR/table preprocessing, token-aware chunking, and evidence reranking to score 11 contractor proposals (~1,000 pages each) across 40 criteria, reducing evaluation from 126 reviewer-hours to 8 and landing within ±7% of human scores.
- Built an outage-coordination platform automating Primavera P6 and SharePoint data into Power Apps and Power BI, screening 72 planned outages pairwise to flag 30 same-station, same-window conflicts spanning 2,330 overlap days at risk before crews mobilized.
- Supported field walkdowns at 3 T&D sites with Project Engineers, assessed conduit collapses to determine repair scope, responsible party, and estimated remediation cost, and defined site security requirements, including perimeter fencing for material laydown areas.

Perrybotics (501(c)(3) Nonprofit) — Tustin, CA **Aug 2021 – Present**
Executive Director **Apr 2025 – Present**
- Lead VEX robotics programs at 6 high schools, providing V5 control systems, fabrication access, and competition support.
- Manage a $15,000 annual budget covering hardware, competition travel, and district and sponsor partnerships.
- Organize CTE programs contracted by Tustin and Downey Unified, serving 400 middle-school students.

Mechanical Lead & Project Manager **Aug 2021 – Apr 2025**
- Designed and manufactured 10 competition robots in Onshape, fabricating on a DigiLab laser cutter and Bambu Lab X1C.
- Engineered pneumatic transmissions, gear trains, custom fixtures, and encoder/IMU-based odometry with PID feedback.
- Reduced average robot weight by 7 lb and cost by 54% by replacing stock metal with laser-cut POM plate structures.

Guzman Electric & Plumbing Services — Santa Ana, CA **Mar 2018 – Present**
Electrical & Plumbing Field Technician
- Perform electrical and plumbing installation, repair, and troubleshooting across 1,000+ residential and commercial service visits, including full-system remodel work on 90+ homes.
- Install and service panels, circuits, and water heaters across 15 Burger King locations under same-day emergency response; train 2 new helpers and coordinate material purchasing with distributors.

Magikid Robotics Lab — Tustin, CA **Jun 2024 – Aug 2025**
Curriculum Instructor
- Developed robotics curricula for 31 students ages 4–13 using SolidWorks, 3D printing, and Python.
- Mentored a team in robot design, control theory, and project planning, leading to VEX AI World Championship qualification.

ENGINEERING PROJECTS

High-Speed FPV Drone — Independent Project **Jun 2026 – Present**
- Invalidated a 7-inch, 6S configuration in a propulsion study, re-specifying 5.1-inch two-blade props on 8S.
- Designing a 5.1-inch, 245 mm FPV airframe with an ogive PA-CF fuselage and ducted motor nacelles, halving estimated drag versus exposed motor bells within a 710 g weight budget.
- Selected an 8S battery, 1650 KV motors, ESCs, and two-blade props from manufacturer thrust data, validating a Mach 0.90 tip limit at charged voltage and cutting resistive loss by 44% versus 6S.
- Integrating flight-control firmware (Betaflight), a long-range control link (ELRS), GPS, and Blackbox telemetry, with thrust testing and PID tuning planned against vibration, current, and motor temperature.

3 lb Beetleweight Combat Robot — Independent Project **Jun 2025 – Jul 2025**
- Designed in Onshape and built a 3 lb vertical drum spinner, meeting competition-style weight and size constraints.
- Integrated a 2.4 GHz radio and dual motor controllers, achieving 5.17 ft/s on differential drive with <100 ms response time.
- 3D-printed a 9-piece bolted chassis, cutting frame weight 30% and allowing damaged panels to be reprinted individually.

TECHNICAL SKILLS

Design & Analysis: SolidWorks, Onshape, Fusion 360, MATLAB, GD&T, FEA, DFM
Programming & Automation: C, C++, Python, Microsoft Power Platform, GitHub
Robotics, Controls & UAV: PID Control, Odometry, Encoder/IMU Integration, Embedded Systems, Motor & Flight Controllers (Betaflight/ELRS), Propulsion Sizing, FPV Systems
Manufacturing: Manual & CNC Machining, FDM 3D Printing, Laser Cutting, Soldering, Fixture Design, G-code