Caleb Bailey E.I.T.

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Education

California Polytechnic State University, San Luis Obispo — *Expected May 2027*
Master's and Bachelor's of Science in Mechanical Engineering. — GPA: 3.72
Minor in Computer Science.

Certified Engineer-In-Training & NCEES PE: Mechanical Exam Passed — *March 2026*

Certified SolidWorks Simulation Professional — *April 2026*

Skills

Design & Analysis: FEA, GD&T, Machine Design, Control-System Stability Analysis
Engineering Software: SOLIDWORKS, Abaqus, MATLAB, Simulink, AutoCAD Plant 3D, Pipe-FLO, EES.
Programming: C++, Python, OOP, Arduino, Raspberry Pi, Java, SQL, LLM Integration.

Experience

Diversified Project Services International, San Luis Obispo, CA
Engineer I, June 2026 – Present

- Coordinate mechanical/electrical design for the 2025 Golden Mussel Mitigation project, resolving technical RFIs, developing electrical load lists, reviewing single-line diagrams, power distribution cabinets, and conduit/cable tray routing across project sites.
- Design and size industrial piping systems in Pipe-FLO, using hydraulic models, system curves, and the mechanical energy equation to calculate pressure losses and total dynamic head, evaluate pump performance, and select pumps.
- Evaluate piping and pressure-vessel integrity, including MAOP, minimum wall thickness, corrosion allowance, and defect acceptability, under ASME B31.1, B31.3, B31G, and Section VIII, Division 1, while applying the California Plumbing Code to plumbing design.

Engineer Intern, June 2024 – June 2026

- Produced and revised 100+ engineering drawings across 25+ industrial projects, developing P&IDs, piping layouts, isometrics, and fabrication details in AutoCAD Plant 3D.

Stria LLC, Bakersfield, CA
Solutions Engineer, June 2022 – August 2022

- Designed and implemented over 10 automated contract workflows for small-to-midsize business clients using DocuSign, reducing document turnaround time by 35%
- Led 15+ client discovery meetings to define requirements and develop functional solutions.

Projects

AI Wikipedia Racer
Advanced Artificial Intelligence Final, March 2026.

Developed an LLM-based Wikipedia navigation system that traverses an unknown hyperlink graph from a start page to a target page using only locally available page links.

- Implemented and evaluated Default, Planning, and Tree-of-Thoughts agents using heuristic filtering, hybrid semantic/lexical retrieval, cross-encoder reranking, and priority-queue search.
- The Tree-of-Thoughts agent against human performance across 8 randomized paths, achieving 18% fewer hops, 14% higher path efficiency, 2x more optimal paths, and 3.6x faster runtime.

Elevate Hardcase
Senior Design Project, Sept 2025 - June 2026.

Designed a mechanical elevating system for Nanuk 935 hard cases to raise equipment to an ergonomic working height while preserving the case's original functionality and TSA-compliant features.

- Designed an elevation system that achieved setup times 67% faster than the target requirement.
- Validated the design through structural FEA analysis, confirming the system could support 1.5x the required rated load.

Want to see more of my projects? Go to calebjbailey.com or scan the QR Code.