Eyan Documet

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SUMMARY

Recent UC Berkeley BSME graduate specializing in electromechanical and multi-physics systems. Experience across robotics, controls, advanced manufacturing, and hardware prototyping. Seeking a full-time engineering role.

EDUCATION

University of California, Berkeley, B.S. in Mechanical Engineering - 3.47 GPA   Dec 2025

EXPERIENCE

Engineering Intern, Lawrence Berkeley National Laboratory - Berkeley, CA   Jun 2025 - Dec 2025

- Independently developed prototype accelerator lattice piece meeting mechanical and magnetic constraints for next-gen synchrotrons, representing order-of-magnitude mass and power reduction vs conventional systems
- Reviewed and released 100+ part assembly into PLM; identified design conflicts in magnet mounting and revised drawings to simplify machining and reduce tolerance stack-up
- Replaced manual magnetic alignment with a real-time closed-loop controller achieving $\pm 0.5°$ in-situ alignment of accelerator-strength permanent magnets
- Built MATLAB and Python tools to optimize permanent magnet layouts and reduce measured field errors
- Conducted root-cause failure analysis on mechanical failures; presented findings to stakeholders and implemented design revisions that eliminated recurrence

Reader, ME154: Thermophysics for Applications, UC Berkeley - Berkeley, CA   Aug 2025 - Dec 2025

- Graded assignments and proctored examinations for a class of 30+ graduate and undergraduate students

MESA Tutor, College of the Canyons - Valencia, CA   Apr 2022 - Jun 2023

- Delivered individualized group STEM tutoring and mentoring for over 50 students per semester

PROJECTS

Gyroid Optimization Experiment, Project Lead   Aug 2025 – Dec 2025

- Led and coordinated a team of three to conduct a 3x3 full-factorial study with 3x replication (N=27) to determine whether a performance optimum existed in the design space of gyroid isovalue and unit-cell density
- Found a strong correlation ($R^2 = 0.94$) for a non-linear interaction between gyroid isovalue and unit cell density

Robotic Fire Suppression System, Electromechanical Lead   Feb 2025 – Jun 2025

- Designed and built 3D-printed prototype robot capable of extinguishing small fires without human input, achieving a 95-100% hit-rate on controlled small-fire tests at a ≤ 2 m range
- Developed low-level computer vision for heat sensing, runnable on local edge hardware, capable of near-zero latency for sensing, control, and delivery

UC Berkeley Solar Vehicle Team, Rear Suspension Team   Feb 2025 - Jun 2025

- Led rear suspension subteam to reduce rear suspension from an 8-part assembly to a monolithic structural component with mounting brackets, cutting part count 8:1, reducing mass, and simplifying manufacturing and assembly

SKILLS

- **Manufacturing/Fabrication:** Extensive (10+ years) experience with 3D printing (FDM, SLA, MJF); well-versed (3+ years) in CNC machining, CAM (Autodesk Fusion)
- **Controls/Robotics:** Proficient in closed-loop control (PID, state-space), kinematics, Lagrangian Mechanics, motion planning, motor selection and calibration, and actuator integration
- **Mechanical Design/Manufacturing:** Experienced in Creo Parametric, Windchill PLM, Autodesk Fusion, GD&T, tolerance analysis, DFMA, FEA, root-cause failure analysis (fishbone diagrams), statistics (modeling, hypothesis testing, six-sigma)

- **Embedded Systems/Software:** Highly experienced in Python, MATLAB/Simulink, microcontrollers (Arduino, ESP32), C/C++, Git, Linux, G-code