

Aadit Kannan

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Education

University of California, Berkeley | B.S. Mechanical Engineering | Minor in EECS | Expected May 2028

- Coursework: Mechanical Behavior of Materials, Thermodynamics, Circuits and Devices, Discrete Math and Probability, Differential Equations, Linear Algebra, Manufacturing and Design

Current Project

Wolfrom Robotic Actuator

May 2026 - Present

- Designed a compact 50.45:1 coaxial Wolfrom planetary actuator targeting 50 N-m peak and 30 N-m continuous torque; developed the compound-planet gear train, bearing stack, shafting, motor integration, and tolerance stack in Onshape
- Built FDM prototypes for fit and gear-mesh validation; analyzed gear geometry in KISSsoft and a 500 N radial housing load case in ANSYS, which predicted 5.34 MPa peak von Mises stress and 1.07 micrometers maximum deformation
- Reduced simulated steel housing mass from 153.4 g to 99.6 g (35%) through topology optimization, then converted the result into a manufacturable shelled and ribbed design; preparing for metal prototyping and dynamometer testing

Custom Toolbox Design and Manufacturing

Jan 2026 - May 2026

- Designed and fabricated a sheet-metal toolbox with production drawings per ASME Y14.5; defined datum schemes, geometric tolerances, bend reliefs, hole clearances, and fastener interfaces for assembly

Experience

Undergraduate Researcher | Ramesh Lab

Jan 2026 - Present

- Designed a custom 4-layer nanosecond/microsecond pulse-generator PCB for BiFeO₃ beyond-CMOS memory and logic research, integrating LMG1020-driven GaN switching, 50-ohm routing, RF relays, grounded BNC interfaces, Keithley 2400 biasing, and RP2040/Python control; fabricated the board and began staged electrical bring-up
- Completed 20+ supervised PLD growth runs of BiFeO₃ thin films on oxide substrates, achieving sub-10 nm surface roughness; characterized films using atomic force microscopy (AFM), piezoresponse force microscopy (PFM), and X-ray diffraction (XRD), and analyzed polarization and hysteresis data in MATLAB
- Built a PLD experiment-tracking and camera-assisted positioning system used to organize data from 100+ lab depositions, connecting process conditions with AFM, PFM, XRD, and electrical characterization results

Accumulator Mechanical Engineer | Formula Electric at Berkeley

Sep 2025 - Present

- Designed and manufactured packaging for 588 V accumulator high-voltage electronics, integrating busbars, insulation, waterproofing, fastener access, and serviceability within a constrained enclosure; used FEA to optimize the custom aluminum chassis and reduce high-voltage electronics enclosure mass by 18%
- Selected laser-cut aluminum, waterjet polycarbonate, and Nomex insulation; sized busbar material and geometry for 80 A peak discharge and supported FSAE structural and electrical safety documentation (SES/ESF)

Hardware Lead (#13216) and Captain (#20424) | FIRST Robotics

Aug 2021 - Aug 2025

- Designed 5 competition robots across CAD assemblies exceeding 500 parts, used FEA to optimize custom mechanisms, and won the Design Award three times
- Led hardware development and mentored 30+ members in CAD, manufacturing, assembly, and troubleshooting through regional competitions

Mechanical Engineering Intern | Posha, formerly Nymble

Jun 2023 - Aug 2023

- Repaired and validated 20+ customer cooking robots by diagnosing electrical and mechanical failures and debugging integrated subsystems

Student Leadership Committee | STEM Leadership Institute

Aug 2019 - Aug 2025

- Completed a 6-year selective STEM program with 1,800+ hours of technical work; trained 120 students in Arduino and mentored 7 FIRST teams

Leitmotif | Y Combinator and Google DeepMind Hackathon Winner

Mar 2026

- Built a real-time assistive audio system using Gemini vision, DeepMind Lyria, Node.js, TypeScript, and PostgreSQL; won the hackathon and earned \$5,000 in Google Cloud credits

Skills

Mechanical Design: SolidWorks, SolidWorks PDM, Onshape, Fusion 360, ANSYS, KISSsoft, GD&T (ASME Y14.5), DFM/DFA

Electronics and Test: KiCad, Altium, LTspice, LabVIEW, Keithley 2400, oscilloscopes, GPIB, SCPI, SMD soldering

Manufacturing: CNC machining, laser cutting, waterjet, sheet metal, TIG welding, FDM, SLA

Characterization and Software: PLD, AFM, PFM, XRD, Python, MATLAB, Java, Git