

# Aarav Bedi

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## EDUCATION

### University of California, Berkeley

*Bachelor of Science in Mechanical Engineering/Mechatronics concentration*

Aug 2022 – May 2026

*Berkeley, California*

## TECHNICAL SKILLS

**Tools:** SolidWorks, CATIA, CREO, Fusion 360, AutoCAD, TruckSIM, SmartUQ, Altair One HyperMesh FEA, MATLAB, C++, troubleshooting, CFD Ansys, Cadence, Python, Welding, Milling, CNC machining, 3D Printing, 3D Scanning, Instron Machine, laser cutting, TIG, Waterjet, Poly Jet Printers, Wood Shop, Lathes, Composites Layup

## EXPERIENCE

### Aerodynamics Advisory Lead

*Formula Electric Berkeley*

Aug 2024 – Present

*Berkeley, California*

- Led a cross-functional team of 20 engineers to transform manufacturing processes and aerodynamic designs, streamlining assembly and manufacturing operations, delivering efficiency gains ahead of schedule, and achieving a 10% boost in aerodynamic performance. Previously, as Aerodynamics Lead (Aug 2022 – Aug 2024), optimized 14+ design models and reduced timelines by a full month through advanced CAD and simulation techniques.
- Elevated team expertise by mentoring 15+ new members in advanced CFD (ANSYS), Composite-FEA, and CAD (SolidWorks, Fusion 360), fostering rapid onboarding and exceptional technical proficiency. Designed and tested high-performance aerodynamic prototypes, incorporating electro-mechanical elements to enhance vehicle design and integration.

### Undergraduate Research Assistant

*Lawrence Berkeley National Laboratory*

Jan 2024 – Present

*Berkeley, California*

- Conducted Root Cause Analysis and cutting-edge research in hydrogen fuel cell technology, uncovering transformative methods to revolutionize automotive efficiency and sustainability.
- Utilized Python, MATLAB, and measurement model database management to pioneer breakthroughs aimed at a 50% reduction in capital costs, while ensuring compliance with quality assurance standards and industry-leading durability benchmarks.

### Structural Analysis Engineering Intern

*PACCAR*

May 2024 – Aug 2024

*Seattle, Washington*

- Executed Root Cause Analysis for FEA-driven testing and optimization on next-gen truck models, battery packs, and advanced sensors using HyperWorks 2021.2. Enhanced compliance and quality assurance by delivering modal and static analysis with sub-250MPa stress levels and displacements above 20Hz on A36 Steel.
- Improved manufacturing operations and boosted FEA efficiency by 40% using HyperMesh 2024's PhysicsAI. Presented key performance indicators (KPIs) to senior leadership, driving the adoption of advanced technologies for higher resilience and compliance.
- Worked in the shadow of senior engineers to gain deeper insights into electro-mechanical systems, troubleshooting, and optimizing complex manufacturing processes.

## PROJECTS

### Project Miata

*Personal Project*

Jan 2024 – Aug 2024

*Berkeley, California*

- Engineered a high-performance transformation of a 1992 Mazda Miata by turbocharging the 1.6L engine, boosting horsepower from 120 to 190hp. Redesigned the system with precision pistons, CAD components, and a custom 3D-printed dashboard to monitor turbo and coolant metrics, integrating statistics for real-time performance tracking.
- Enhanced vehicle handling and braking by upgrading suspension and brakes to racing standards, delivering a true high-performance driving experience aligned with measurable KPIs.

### Vacuum Infusion

*3D CAD and Manufacturing*

Jan 2024 – May 2024

*Berkeley, California*

- Designed and executed a fully automated vacuum bagging process using CAD, Python, and 3D printing. Conducted FEA bend testing to ensure durability and precision for breadboard covers tailored to assembly workflows.
- Developed an advanced dashboard for remote control, integrating a pressure transducer, ESP 32, IFTTT, Adafruit, MQTT, and Kasa plug, meeting compliance standards and automating manufacturing operations through networked devices.