Aarav Bedi

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EDUCATION

University of California Berkeley   Aug. 2022 – May 2026
Bachelor of Science in Mechanical Engineering   *Berkeley, California*
- Relevant Coursework: Solid Mechanics, 3D Modeling and Design, Manufacturing and Design Communication, MATLAB, Finite Element Analysis Post-Grad, Electronics in Engineering, Thermodynamics, Fluid Mechanics

TECHNICAL SKILLS

Developer tools: SolidWorks, CATIA, CREO, TruckSIM, SmartUQ, Altair One HyperMesh FEA, MATLAB, CFD Ansys, Fusion 360, AutoCAD, GD&T, Python
Machine Shop: Welding, Milling, CNC machining, 3D Printing, 3D Scanning, Instron Machine, laser cutting, TIG, Waterjet, Poly Jet Printers, Wood Shop, Lathes, Composites Layup

EXPERIENCE

Vehicle Simulations Intern   May. 2024 – Aug. 2024
PACCAR   *Seattle, Washington*
- Leveraged Finite Element Analysis (FEA) using HyperWorks 2021.2 to perform comprehensive testing, analysis, and experimentation on future truck models, advanced sensors, battery packs designs and engine mounts.
- Executed detailed modal and linear static analysis to accurately assess stress, strain, frequency and impact on various complex structures specific to A36 Steel with displacement over 20Hz and Linear Static under 250MPa, ensuring low yielding and fatigue.
- Tested PhysicsAI extension in HyperMesh 2024, increasing FEA efficiency by up to 40% through AI integration, and presented findings to senior leadership for approval.

Aerodynamics Advisor   Aug. 2022 – Present
Formula Electric Berkeley   *Berkeley, California*
- Led a team of 20 engineers, improving manufacturing processes and aerodynamic designs, resulting in higher efficiency than expected timeline.
- Reviewed and troubleshooted over 14 design models, offering solutions that improved aerodynamic efficiency by 10%, reducing the overall manufacturing process by 1 month.
- Trained and mentored 15+ new team members in CFD (ANSYS), Composite-FEA, and CAD (SolidWorks, Fusion 360), ensuring a faster on-boarding and increased team proficiency.

Undergraduate Research Assistant   Jan. 2024 – Present
Lawrence Berkeley National Laboratory   *Berkeley, California*
- Investigated innovative methods to optimize the application of hydrogen fuel cells in the automotive industry, focusing on enhancing efficiency and sustainability.
- Conducted in-depth research aimed at achieving a 50% reduction in capital costs, alongside optimization and durability improvements for future automotive applications.

PROJECTS

Project Miata   Jan. 2024 – Aug. 2024
Personal Project   *Berkeley, California*
- Worked on 1992 Mazda Miata engine 1.6 litre with an added turbo increasing horsepower from 120 to 190hp.
- Restructured the engine with added turbo and new pistons. Used CAD and 3-D Printing for a new dashboard on passenger side for turbo, booster and coolant temperature values.
- Upgraded the suspension system for improved handling and installed high-performance brakes for better stopping power.

Vacuumation   Jan. 2024 – May. 2024
3D CAD and Manufacturing   *Berkeley, California*
- Automated the vacuum bagging process using Python, CAD, 3D printing, and FEA for bend testing in designing a breadboard cover.
- Utilized a pressure transducer, ESP 32, IFTTT, Adafruit, MQTT, and a Kasa plug to code and design an automated dashboard for automated On/Off functionality using remote devices.