

Amrik Verma

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EDUCATION

University of California, Berkeley

B.S. Mechanical Engineering, Minor in EECS

GPA: 3.65

May 2027

Coursework: Python & MATLAB, 3D Modeling for Design, Physics: Mechanics & Electromagnetism, Linear Algebra, Differential Equations, Solid Mechanics, Thermodynamics, Mechanics of Materials, Circuits & Devices, Data Structures & Algorithms

SKILLS

Programs: SolidWorks, Ansys, PDM, Simulink, LabVIEW, OnShape, Jupyter, GitHub, VS Code, Microsoft Office, Excel

Languages: Python, MATLAB, Java, PyTorch, Pandas, NumPy, Dart

Technical: CAD, GD&T, FEA Simulation, Engineering Drawings, Precision Machining, CNC Machining, 3D Printing, Milling, Lathe, Laser Cutting, DFM, Rapid Prototyping, Topology Optimization, Circuitry, Arduino, Sensors, Git

EXPERIENCE

FSAE Berkeley Formula Racing

Berkeley, CA

Drivetrain Engineer

Sept 2025 – Present

- Designed wheel hubs, differential mounting plates, and jacking bar using SolidWorks, ensuring durability for the new engine
- Optimized 7075-T6 aluminum wheel centers for carbon fiber shells with SolidWorks and Ansys topology optimization to achieve a 59% weight reduction, validating it to a factor of safety of 1.3 with FEA
- Performed tolerance stack-up analysis and created jigs for CNC, increasing accuracy and consistency for various parts of the car
- Executed strain gauge tests and modal vibration analysis to validate FEA predictions, improving fatigue resistance and vibration damping for chain guard

University of California, Berkeley, Department of Mechanical Engineering

Berkeley, CA

Undergraduate Researcher - High Performance Robotics Lab Research Group

May 2025 – Present

- Implemented NMPC for tilttable-quadcopter in PyTorch, simulating PyBullet tracking with 5% trajectory error across 50 flights
- Modeled servo actuators as 1st-order systems using state/input constraints, enabling live trajectory tracking in hardware testing
- Benchmarked 6-DOF tracking in overactuated UAVs, reducing disturbance rejection by 30% vs. conventional controllers
- Prototyped teaching platforms for ME136 UAV course, replacing Crazyflie drones with safer, efficient, and 15% cheaper design

Undergraduate Researcher - FLOW Lab Research Group

Sept 2025 – Present

- Designed preliminary wiring diagrams for 20+ sensors using circuit CAD for a flow loop with 4-person team and PhD student
- Developed sensor integration plan and LabVIEW code for cDAQ system, optimizing data acquisition and experiment setup

Berkeley Underwater Robotics

Berkeley, CA

Mechanical Subteam Member

Jan 2025 – Sept 2025

- Designed and 3D-printed AUV dropper mechanism, reducing deployment time by 40% across trials through iterative testing
- Engineered pneumatic torpedo launcher using Ansys, achieving 12 m/s launches with 0 failures across 50 underwater tests
- Prototyped adaptive magnetic claw with CAD, improving retrieval success rate from 60% to 90% in underwater object recovery

Ati Motors

Detroit, MI

Mechanical Design Intern

May 2024 – Aug 2024

- Performed HIL testing and assembly for AMRs in 15 factories across 2 countries, validating LiDAR and industrial sensors
- Prototyped and optimized battery modules, achieving sub-2 minute cold swaps, boosting autonomous vehicle uptime by 20%
- Calibrated and integrated motors, encoders, and control units improving localization error to less than 5 cm during testing

PROJECTS

Wind Turbine Design Project | SolidWorks, 3D Printing, FEA

Jan 2025 – May 2025

- Developed a 3D-printed wind turbine generating 2W, optimized stiffness and assessed stress distribution through linear FEA
- Designed rotor blades with 10 degrees angle of attack and 17 degrees twist, achieving 18 N/m stiffness and 16% energy increase
- Used SolidWorks, FEA, and SLA fabrication to prototype, test, and validate components, achieving gains in wind simulations

MATLAB Bone Implant Analysis | MATLAB, Solid Mechanics

Jan 2025 – May 2025

- Developed a MATLAB suite to model femur stress distributions under asymmetric bending with and without implants
- Computed stress fields, neutral axis orientation, and centroids using BMD-weighted modulus maps from medical imaging data

ACTIVITIES & LEADERSHIP

Pi Tau Sigma, Berkeley Mechanical Engineering Honor Society

Berkeley, CA

Industry Relations Officer

May 2025 – Present

- Established partnerships with 5 engineering firms, coordinating info sessions and networking events for industry engagement
- Organized and led professional & research panels, increasing student participation in career development events by 40%

FIRST Robotics 2813

Saratoga, CA

Fabrication and Software Lead

May 2022 – June 2024

- Designed and fabricated intake, wrist, & shooting mechanisms, leading to a regional championship and FIRST Impact Award
- Trained 30 members in CNC machining, developing workshops that improved fabrication speed, accuracy, and rookie proficiency
- Mentored 35 students in Java and Git, improving code reliability and deployment with 50% reduced failures during matches