Mahirr Sikka

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Education

University of California, Los Angeles (UCLA) June 2029
B.S. in Mechanical Engineering *GPA: 3.83*
Recipient of 4 merit-based engineering scholarships (Alfred C. Ingersoll Scholar; 2x Samueli Foundation Engineering Scholar; Bernie G. Yip Scholarship)

Skills

CAD & Manufacturing: SolidWorks, Siemens NX (UG NX), Fusion 360, 3D printing, CNC, thermoforming, composite layup
Simulation & Analysis: STAR-CCM+, Ansys Fluent, HyperMesh, Python, simulation automation, post-processing
Integration & Testing: Mechanical/electrical component integration, bench testing, test data analysis, underwater trials

Experience

Bruin Supermileage (SMV)
Components Project Engineer & Simulations Project Engineer May 2026 - Present
- Developed a lighter vehicle lighting system from SolidWorks design through manufacturing, improving mounts and custom thermoformed housings while maintaining durability.
- Designed an underbody fairing and evaluated vehicle and component geometries in Ansys Fluent to guide aerodynamic design and drag reduction.
- Led hands-on workshops for new members, teaching CFD and simulation fundamentals and building engineering analysis capability across the team.

Suzuki
CAE/CFD Intern July 2026 - August 2026
- Reduced simulated CdA by 0.005 on the Victoris model through underbody front-strake design and aerodynamic evaluation in STAR-CCM+.
- Lowered simulated CdA by 4% on a pre-production vehicle by iterating diffuser angles, nose geometry, and bumper openings in Siemens NX and Blender.
- Modified and executed Java/Python macros to automate geometry iterations, simulation execution, and post-processing for engineering design evaluations.

Bruin Formula Racing (FSAE)
Suspension Team Member & Aerodynamics Team Member October 2025 - June 2026
- Designed and bench-tested suspension components on a compliance jig, using stiffness, deflection, and load-response data to validate system performance.
- Improved simulated aerodynamic performance by 9% through front wing and sidepod iterations in SolidWorks and STAR-CCM+, evaluating drag and downforce.
- Manufactured carbon fiber components using resin application and vacuum bagging, maintaining consistent layup for structural integrity.

Projects

Underwater Rover
Chassis Designer and Manufacturer March 2026 - June 2026
- Designed a SolidWorks chassis with interlocking motor mounts for a 6-motor, 5-DOF ROV; achieved neutral buoyancy through displacement/weight testing.
- Collaborated with the electronics team on mechanical and electrical integration, coordinating motor, tether, and camera placement.
- Built and integrated a 95 PSI pneumatic system with an air compressor and solenoid valve, demonstrating remote deployment through underwater trials.

Go-Kart
Chassis Manufacturer and Brake Designer September 2025 - December 2025
- Designed the chassis in SolidWorks and manufactured a mechanical cable brake system with pedal linkage, connecting CAD with fabrication and testing.
- Validated braking performance through repeated pedal-to-stop tests and designed chassis geometry to meet handling, weight, and ergonomic targets.
- Redesigned a hand brake after an unexpected component failure, taking ownership of the fix and maintaining the project build schedule.

F1 in Schools
Team Manager and Manufacturing Engineer January 2024 - August 2024
- Led CFD/FEA-driven design and 3D printing/CNC manufacturing, achieving a drag coefficient ~4x lower than the competition average and a top-five track time.
- Placed 2nd nationally among 100+ teams and qualified to represent India at the 2024 World Finals in Saudi Arabia.
- Managed timelines and delegated tasks across design, engineering, and manufacturing, keeping project workstreams aligned with competition milestones.