Neha Nepal

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EDUCATION

University of California, Santa Barbara, Santa Barbara, CA *Expected 2026*
Bachelor of Science (B.S.), Mechanical Engineering
Certificate, Technology Management
Relevant Coursework: Multiphysics Simulations, Aerodynamics, Mechatronics, Machine Learning, Heat Transfer, Thermodynamics, Fluids Mechanics, Circuitry, FEA

ENGINEERING PROJECTS

Northrop Grumman Camera Housing (UCSB Capstone Team Lead | Team of 5) *September 2025 - June 2026*

- Collaborating with NGIS engineers to design and prototype a camera housing for extreme spacecraft environments.
- Ensuring compatibility with off-the-shelf camera systems and remote operation through thermal chamber walls.
- Researching thermal insulation, vacuum sealing, and remote control for operation at -180°C to 130°C and 10^{-4} torr.
- Leading team from concept to development, applying mechanical and thermal design principles

Window Washer (Mechanical Engineering Design | Team of 4) *March - June 2025*

- Designed and built an Arduino-powered autonomous window washer with a spray system under a $150 budget.
- Iterated through five prototypes, reducing friction by 40% and weight by 15% through mechanical redesign.
- Applied fluid mechanics for a consistent spray mechanism, achieving 95% visible dirt removal within five passes.
- Presented the final prototype at the UCSB Design Fair to students, faculty, and industry professionals

Airfoil Optimization (Wind & Tidal Energy | Team of 3) *March - June 2025*

- Designed a 50 m wind turbine using the S8037 airfoil, optimized for 12 m/s wind speed and TSR = 6.
- Achieved 1.03 MW power output and Cp = 0.5 using MATLAB and Blade Element Momentum theory.
- Performed wind-speed analysis (4–20 m/s) and structural deflection studies in SolidWorks.
- Modeled wake interactions and selected the Entrainment model for a 12.7 MW wind farm configuration.

Rep Counter (Engineering Graphics | Solo Project) *March - June 2024*

- Developed tracker using Arduino Nano and accelerometer; achieved 90% rep count accuracy.
- Designed and 3D-printed case iterated based on feedback.
- Coded sensor integration and display logic in Arduino IDE; optimized for low lag and robust input.
- Awarded "Most Technical Project" for sensor integration and clean design.

PROFESSIONAL EXPERIENCE

Western Allied Mechanical, *Project Engineering Intern* *June - September 2025*

Union City, CA

- Saved 30+ PM hours weekly through mechanical drawing reviews and input across 10 HVAC projects.
- Conducted weekly site audits on $2–3M healthcare and lab jobs.
- Identified discrepancies between engineering plans and on-site layouts, preventing ~$50K in potential rework.
- Collaborated with the team to recreate full mechanical drawings
- Streamlined the RFI and submittal process; maintained procurement logs.

UCSB Recreation, *Operations Assistant* *June 2024 - September 2025*

Santa Barbara, CA

- Led the front desk during peak hours and trained 5+ new hires to ensure smooth operations.
- Maintained CPR certification and completed safety training for readiness in high-risk environments.

SKILLS

Programming: MATLAB (Advanced), Python, Arduino IDE
CAD & Modeling: SolidWorks (Advanced), 3D Printing (Advanced), Fusion 360, FEA, COMSOL
Tools & Platforms (Advanced): LaTeX, Bluebeam, Autodesk Construction Cloud, Procore, Asana