# Srisha Rewatkar

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## Education

**University of California, Berkeley**

*B.S. Mechanical Engineering, B.A. Data Science with Aerospace Minor*                    *Expected Graduation: May 2026*

**Technical Skills:** MATLAB , Java , Python , ImageJ , GD&T , Technical Writing , CAD Design , Structural Analysis , Computational Fluid Dynamics (CFD) , Finite Element Analysis (FEA) , CATIA GSD , SolidWorks CAD , AutoCAD , Ansys CFD & FEA , HTML, CSS, JavaScript, Bootstrap

**Languages:** English, Spanish, Hindi, Marathi, Sanskrit

## Experiences

**Mahindra Automotive North America** | Body, Closures, and GSM Intern

*May 2024 – July 2024*                                                                      *Auburn Hills, MI*
- Improved ergonomics of inner door handle using ergonomic principles to improve user interaction and accessibility as per vehicle ergonomic standards.
- Analyzed inner door handle through FEA and first-principle analysis to minimize costs while retaining performance.
- Refined designs of components (drain hose) using CATIA GSD - surface modelling to eliminate interferences in assembly.
- Optimized structural integrity of Body-in-White (BIW), using A2MAC1 and Caresoft Iceberg benchmarking tools, to analyze competitors' BIW cross sections for SUVs through meticulous analysis of section modulus, moment of inertia, and material properties.

**Formula SAE Electric at Berkeley** | Aerodynamic Structures Engineer

*Aug 2023 – Current*                                                                         *Berkeley, CA*
- Achieve top 20 placement for Design Event, demonstrating excellent design approach, rationale and validation techniques
- Achieve $2^{nd}$ place in Cost Event by cost-saving proposal that affected performance by less than 10%.
- Engineer rear wing mounting rods, using SolidWorks, by considering the center of pressure and center of mass to minimize aerodynamic disruption.
- Validate design with rigorous simulation of cyclical loads, comprehensive structural integrity analysis, and drag-lift coefficients using Ansys FEA & CFD.
- Ascertain accurate manufacturing and improved accuracy using datum strategies, constrained degrees of freedom, and GD&T.
- Work cross-functionally across subsystems to improve manufacturing efficiency and optimized workflow.

**Theoretical & Applied Fluid Dynamics Lab** | Undergraduate Design & Manufacturing Researcher

*August 2024 – Current*                                                                      *Berkeley, CA*
- Design rigid airfoil sails and structural elements on autonomous survey drones capable of precision maneuvering using rapid prototyping for energy-efficient marine navigation and surveying
- Secure highly competitive NSF I-Corps training and funding to connect research to consumers and develop start-up.

**UC Berkeley Dept. of Mechanical Engineering** | Academic Tutor

*August 2024 – January 2025*                                                                 *Berkeley, CA*
- Prepared educational material for 120 students and aided professor in efficient instruction for the class Engin 29 – Manufacturing and Design Communication.
- Key principles taught: communicating manufacturing requirements using GD&T, designing for manufacturability, 3D visualization of designs, and employing efficient manufacturing techniques.

**Engineering Student Services, UC Berkeley College of Engineering** | ESS Peer Advisor

*August 2024 – Current*                                                                      *Berkeley, CA*
- Assist newly admitted, transfer, and continuing students and support engineering advisors in guiding students on coursework, school policies, career paths, and opportunities

**Inter University Centre for Astronomy and Astrophysics (IUCAA)** | Research Apprentice

*Apr 2018 – Apr 2019*                                                                                                      *Pune, India*
- Prototyped Radio Telescope from a TV satellite dish and measured the angular diameter of the sun using interferometry.
- Developed Brownian Motion simulations in Python as education materials for outreach programs.

**Infosys Catch them Young program** | Summer Intern

*Apr 2017 – Apr 2018*                                                                                                      *Pune, India*
- Won the Infosys Website development challenge by developing an e-commerce platform for electronic appliances and presenting business plan.
- Completed Design Thinking, HTML, CSS, and Javascript trainings.

## Projects

**Drag Reduction System (DRS) for FSAE**                                                                 *Berkeley, CA*
- Developed fully autonomous DRS for rear-wing elements to improve battery efficiency and straight-line speed of our Electric FSAE car using Wireless Communication with ESP32s and MicroPython.
- System sensed acceleration and brake pedal position using accelerometers and potentiometers, and generated real time data that is used to fine-tune DRS system performance.

**Portfolio Website**                                                                                              *Berkeley, CA*
- Programmed portfolio website to showcase projects and experiences using HTML, CSS, JavaScript and Bootstrap framework to deliver a user-friendly, minimalist UI.
- Incorporated reactive, collapsible navigation menu and self-hosted on Github.

**Wind Turbine & Tower**                                                                                        *Berkeley, CA*
- Designed a wind turbine by selecting an airfoil that optimized the Coefficient of Lift to Coefficient of Drag ratio and produced 1.2 W with a 5 cm blade length.
- Engineered the support tower to minimize the aerodynamic penalty and maximize stiffness.

**Universal Car Parking Assistance Device**                                                             *Berkeley, CA*
- Created a universal car parking assistance device using LED triangulation with complete customization for all drivers in all cars.

**E-Walkie: Elderly Mobility Aid**                                                                              *Pune, India*
- Awarded Rs. 10,000 scholarship from the Department of Science and Technology, India for developing a prototype with recycled materials while prioritizing safety, portability, & affordability.
- Led team to win gold medal at National Business Idea challenge hosted by Indus Startup School. Presented business plan that tackled operations, marketing, and funding to investors.

**AquaRatched Swimming Pool Tensioner**                                                              *Berkeley, CA*
- Developed ratchet-based pool line tensioner for swimmers using Solidworks as an alternative to current plastic and wrench based tensioners and simulated strength and flexibility of device using FEA.

**Gitlet**                                                                                                               *Berkeley, CA*
- Created a local version history tracking software based on Git, developed completely in Java using data structures and object oriented programming techniques.

**Game development: Java & Python**                                                                      *Berkeley, CA*
- *Honeydew Creek:* Coded an open-world, randomized game inspired by Stardew Valley in Java using OOP, random room generation algorithms and path-finding interactions.
- *AstroTanks:* Developed a two-player game in Python using projectile motion equations and configured random hypothetical non-earth environments with variable gravity and atmospheric conditions.

# Independent Research

**Modelling Dynamics of Thin Films using Interference Patterns** *Berkeley, CA*
- Developed three laser-based experiments to understand changes in soap-based thin film thickness for industrial coatings, camera lens coatings, and interferometers.
- Analyzed changes in intensity for different wavelengths of light using Tracker and processed data using Jupyter Notebooks to develop a robust model for thin film thickness evolution.

**Investigating Eddy Current Induced Magnetic Braking** *Berkeley, CA*
- Spearheaded investigation of the relationship between a conductor's thickness, area, and conductivity to evaluate the magnitude of the eddy current generated by a magnet.
- Used findings to improve efficiency of day-to-day conductors and minimize energy losses.

**Forensic Droplet Spatter Analysis** *Pune, India*
- Developed quantitative model correlating spatter diameter of Newtonian liquid droplet with viscosity, surface, and height of release using ImageJ and Python.

**Optimizing Formula-1 Race Strategy** *Pune, India*
- Tailored race strategy model for F1 cars using tyre degradation, fuel, and qualifying lap time variables to predict optimal lap to pit using publicly accessible data and multi-variable optimization.

**Improving Efficiency of Microwave Ovens** *Pune, India*
- Modeled relationship between water content of foods, cook time, and power supplied by microwave ovens to ensure adequate and uniform heating of food using thermodynamic principles and heat transfer analysis

**Environmental effects of Temperature and Salinity on Dissolved Oxygen** *Pune, India*
- Studied negative effects of raising temperatures and salinities of local water bodies on Dissolved Oxygen – crucial for supporting aquatic life.
- Employed electronic Dissolved Oxygen probe and Winkler's method to compare effective methods for testing Dissolved Oxygen levels and developed mathematical model.

# Relevant Coursework

- Fluid Mechanics
- Solid Mechanics
- Data Structures
- Statistics
- Discrete Math and Probability Theory
- Linear Algebra
- Multivariable Calculus
- Thermodynamics
- Mechanics and Dynamics
- Electromagnetism & Optics
- Electronics and IoT
- Mechanical Properties of Engineering Materials
- Quantum Physics & Statistical Thermodynamics
- Engineering Design & Manufacturing