Shriman Jha

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Education

Harvard University — Cambridge, MA

Bachelor of Science in Mechanical Engineering, Minor in Mathematical Sciences. GPA: 3.58/4.00 — May 2027

- Relevant Courses: Solid Mechanics, Fluid dynamics, Mechanical Systems, Thermodynamics, Heat Transfer, Material Selection & Design, Applied E&M, Computer-Aided Machine Design, Multi-variable Calculus, Linear Algebra, O.D.E.s & P.D.E.s
- SEAS Student Ambassador, Course Assistant (CA) for Heat transfer; Computer-Aided Machine Design

Experience

Reflective Inc. — May 2026 – Present

Associate Research Engineer for Experiment Design — San Francisco, CA

- Developing high-fidelity multiphysics model of stratospheric aerosol plume dispersion in aircraft wake, incorporating turbulent mixing, particle dynamics, and radiative interactions.
- Designing and optimizing high-altitude aerosol injection systems, including nozzle geometries and flow conditions, using compressible flow analysis and CFD to control particle size distribution and dispersal profiles.
- Formulating experiment architectures for in-situ atmospheric measurement, evaluating super-pressure balloon sensing strategies and validating models through coupled simulation and data-driven analysis.

Harvard David R. Clarke Materials Discovery and Applications Group — Feb 2024 – May 2026

Undergraduate Researcher — Cambridge, MA

- Research with Professor Clarke and the Clarke Group in investigating the thermal conductivity of thermal barrier coatings, aiming to enhance the efficiency and performance of gas turbine engines.
- Investigating the use of sapphire platelets as opacifiers to minimize radiative heat transfer through fibrous insulation, applying anisotropic scattering models and optical goniometry to improve heat shields for hypersonic missles and re-entry vehicles.
- Led a summer 2024 funded research initiative to enhance Concentrated Solar Power efficiency with advanced alumina receivers while studying thermal conductivity, porosity, and composite material properties.
- Designed and implemented an Ultra-fast High-temperature Sintering (UHS) system, reducing ceramic sintering time from hours to seconds using Joule heating with carbon felt, reaching temperatures up to 2500°C.

Harvard Rocket Propulsion Group — Sep 2023 – Present

President — Cambridge, MA

- Oversee finances, logistics, and overall operations as both team leader and project manager, driving strategic project selection and innovation while securing sponsorships to ensure effective execution and alignment of new and ongoing initiatives.
- Pioneered and static fired the Phase III project, focused on a scalable, low-cost rocket propulsion system. Designed for rapid fabrication and assembly, the rocket utilizes a nitrous oxide and ethanol propulsion system with 800 lbf thrust
- Spearheading the development of a regeneratively cooled liquid rocket engine, fully fabricated through manual machining to reduce costs and reinforce hands-on manufacturing experience.

Harvard Satellite Team — Sep 2023 – Present

Mechanical Team Lead — Cambridge, MA

- Lead the team in designing and constructing the mechanical components of Harvard's first 2U CubeSat being launched through NASA CLSI in Q2 2026 to test a nitinol-based solar array actuation mechanism.
- Coordinate the integrating of CubeSat components to enhance flexibility and reduce the space-to-mass ratio as well as testing and validation of mechanical systems to ensure reliability and performance in space conditions.

Harvard Undergraduate Automotive Society — Jan 2024 – Feb 2025

Mechanical Team Lead Engineer — Cambridge, MA

- Transitioned a gas-powered go-kart to a fully electric vehicle, targeting a maximum speed of 30 mph, while optimizing powertrain efficiency and weight distribution.
- One of the founding members of Harvard's Formula Student Team, playing a pivotal role in designing and constructing the Harvard's first Formula Student car for the 2025 FSAE competition.

Projects

Optimize Post-Weld Heat Treatment for Fatigue Resistance in High-Stress Applications — Sept 2024 – Dec 2024

Ultra-fast High-temperature Sintering (UHS) System Development — May 2024 – Jul 2024

Electronically-controlled ejecting Spark-torch igniter for liquid rocket engines — Jan 2024 – Apr 2024

LeBot James - Tennis Ball Collecting Robot for Turf Wars Competition - 2nd place — Jan 2024 – Apr 2024

Long range VTOL UAVs for Mapping and Delivery — Jul 2022 – Aug 2022

Skills

Software: SolidWorks, COMSOL, Python, MATLAB, AutoCAD, Ansys Fluent, GIS, Origin, Excel, LaTeX, Adobe
Manufacturing: Manual Mill, Manual Lathe, CNC Machining, TIG & MIG Welding, FDM Printing, Waterjet cutter
Research: SEM, FTIR, UV-Vis, LFA, XRD, Furnace, Advanced chemistry laboratory, Ball mill, Sputter Coating
Additional: Engineering Drawing, GD&T, Rapid Prototyping, FMEA, Technical Documentation, French, Hindi, Nepali