Shresth Singh

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Education

Duke University | Durham, NC | B.S. Mechanical Engineering | Class of 2029 | GPA: 4.0 / 4.0

Honors: ACT 36; National German Exam Top 100 Finalist

Engineering Experience

Structural & Aerodynamic Engineer | Duke AERO 2025 – Present

- Designed a rocket nose cone in Onshape, evaluating mechanical design of thermodynamic structural load cases in FEA / ANSYS, testing the model's strength and shape tolerance to the principles of mechanical systems.
- Manufactured a fiberglass mold to the specifications of the optimized simulated nose cone within a 2% tolerance.
- Led the nose cone sub-team, implementing simulation of CAD interfaces and coordinating with the broader structures and materials team to integrate the competition requirements and design milestones into the critical design schedule.

Work Experience

Founder & Lead Tutor | Apex Academix 2021 - Present

- Organized and managed a tutoring service for 20+ students, integrating a coordination system for scheduling.
- Created customized lessons using process optimization techniques based on performance evaluations of students.
- Used data tracking via Excel to measure progress and improve learning outcomes in standardized testing.

Taekwondo Instructor | Vision Martial Arts 2023 - 2025

- Mentored students toward measurable progress using process optimization principles, ensuring rank progression.
- Integrated class coordination using improvement methodology to create iterative, process-optimized lessons.

Data Analyst Intern | Assistant to the CEO | Relanto Summer 2024

- Applied SQL to validate data integrity; delivered analytical reports that supported accuracy checks, and strategic decisions.
- Built Python scripts to automate AI model testing, ensuring validation of model outputs and iterative improvements.

Academic Projects

Mechanical Engineer | Engineering 101 Fall 2025

- Designed and prototyped an electronically operated adaptive ball launcher, achieving 90% accuracy with testing.
- Engineered a modular spring-actuation mechanism that efficiently converted stored potential energy into a ball-launch.
- Used Onshape, the Arduino interface, tolerancing principles, and technical memos to assist in project design.

Skills

Engineering & Design: Onshape, FEA, ANSYS, Engineering Design Process, Prototyping, Technical Documentation

Systems & Computing: Python (NumPy / Matplotlib), C++ (Fundamentals), Systems Thinking, Markdown Fundamentals

Tools: Microsoft Excel (Data Analysis, Reporting), PowerPoint, Git, Gitlab, Jupyter Notebooks

Programming & Data: MATLAB, Data Analysis, Process Mining, Statistical Analysis

Technical Multilingual Communication: English (Fluent), German (Intermediate), Hindi (Conversational)

Clubs and Organizations

Technical Analyst and Public Speaker | Duke Cyber 2025 – Present
- Worked on collaborative projects applying cybersecurity principles, strengthening technical systems analysis skills.
- Attended technical workshops on network security, malware analysis, and emerging threats to real-world systems.

International Competitor and Public Speaker | DECA 2023 – 2025
- Won at State Level for strategy paper that helped a realty company sell a house through marketing.
- Applied consulting and analytical frameworks/financial analysis to deliver recommendations with measurable impact

International Competitor and Public Speaker | FBLA 2023 – 2025
- Achieved two consecutive State-Level wins in Public Speech relevant to engineering decision-making.
- Demonstrated advanced communication, persuasion, and leadership skills before judges and large audiences.