NATALIE BRETTON

ENGINEERING STUDENT

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CAREER OBJECTIVE

I am currently a fourth-year at the University of Virginia graduating in May 2025 with a bachelors in Mechanical Engineering and a minor in Biomedical Engineering. I am super passionate about using the STEM skills I learn to solve problems especially in the field of biomechanics. I love working with people and want my future career to benefit the lives of those around me!

EDUCATION AND CERTIFICATION

B.S. in Mechanical Engineering | University of Virginia | GPA: 3.74 — Expected May 2025

Minor in Biomedical Engineering | University of Virginia — Expected May 2025

Master of Engineering in Mechanical Engineering | University of Virginia — Expected Dec 2025

RELEVANT WORK/EXPERIENCE

Mechanical Engineering Intern | UVA Center for Applied Biomechanics — March 2024 - Present

- My main project aims to collect numerical data on seatbelt use and seat positioning among pregnant drivers, as well as their experiences in hopes of improving automobile safety for all
- Other projects include cyclic compression testing of femurs, sled testing focused on ankle injury, and pedestrian dummy crash tests where I helped with Vicon motion capture and 3D scanning to reveal vehicle deformation

Distal Radius Fracture Reduction Capstone Project | UVA Mechanical Engineering — 2024 - Present

- The project focuses on designing an affordable, accessible, and inclusive 3D-printed device to help train medical students on the process of reducing a Colles wrist fracture
- I have led the communication and collaboration process of my team of 8 with an orthopedic surgeon and Dr. Jason Forman at the UVA Center for Applied Biomechanics

Undergraduate Research | UVA Link Lab — 2022 - 2023

- I used fluid mechanics to study and monitor respiratory waveforms in humans and prevent events like asthma attacks in vulnerable populations
- Demonstrated my work for groups of middle schoolers during the Society of Women Engineers visitation days

Summer Intern | NASA, Langley — Jun 2021 - Aug 2021

- I expanded my knowledge of aerospace engineering and collaborated with others to design a customizable turbofan engine component in an aircraft design program called OpenVSP
- Presented my findings at the 2021 OpenVSP Workshop
- Continued my work after the internship and submitted a conference paper that I presented and published at the 2024 American Institute Aeronautics and Astronautics (AIAA) Aviation Forum in Las Vegas

OTHER WORK EXPERIENCE & ACTIVITIES

Gymnastics Coach | Classics Gymnastics Center 2023 - Present

- I was a competitive gymnast for a decade, balancing my schoolwork and manage my time effectively with practice up to 20 hours a week, and now I use my experience to coach
- I teach 6 -11 year old beginner girls classes and 3-6 year old boys and girls mini classes

Assistant to the CEO, Barista, and Café Specialist | Persnickety Crane Café 2022- 2024

- I was a barista who loved working rush shifts and making latte art while also taking orders, delivering food, and engaging with customers
- As an assistant to the CEO I was tasked with management tasks, marketing, and the planning and developing of café events

Mechanical Fabrication & Pit Crew Lead/AT Coordinator | Triple Helix Robotics 2017- 2021

- Acted as Assistive Technology Coordinator and helped modify and deliver toys and devices to those with disabilities in the Newport News Public School system
- Developed leadership and communication skills and learned how to collaborate effectively
- Applied both leadership and technical skills to lead my team to victory several times

Rodman Scholar | University of Virginia 2021- Present

- Initiated contact and collaboration with a non-profit company, Sportable, that specializes in making sports accessible to those with disabilities
- Worked on an adaptive archery project involving a 3D printed device that allows those with limited hand dexterity to fire a bow
- Taught a class on bouldering to my fellow rodman engineers

HONORS AND AWARDS

Rodman Scholar | University of Virginia | Top 10% of incoming engineering class 2021- 2025
Dean's List | University of Virginia 2021- 2025
Technical Presenter and Conference Paper Publication | AIAA Aviation Forum 2024
Valedictorian | Menchville Highschool | GPA: 4.71 / 5 2021
Seal of Biliteracy in Spanish | Virginia Board of Education 2021
AIAA Roger W. Kahn Scholarship Recipient | $10,000 + $2,500 stipend 2021
AIAA Futures in Aerospace Scholarship | $3000 2021
Southern Automotive Women Scholarship | $2500 2021
FIRST Robotics Competition Dean's List Nominee 2020

RELEVANT COURSEWORK

Graduate Level | Forensic Engineering and Injury Causation Analysis | Continuum Mechanics | Theory of Elasticity | Advanced Mechatronics | Statistics for Engineers and Scientists (Using R)

Undergrad Level | Biomechanics | Strengths of Materials | Physiology I & II | Statics | Dynamics | Mechatronics | Linear Algebra | Ordinary & Partial Differential Equations | Thermodynamics | Fluid Mechanics | Heat and Mass Transfer | Machine Elements & Fatigue Design

TECHNICAL SKILLS

CAD and 3D printing | Proficient in coding (R, Python, MATLAB, C++) | Fabrication and Machining (mill, lathe, band saw, drill press, welding, etc.) | Woodworking | Integrated Mechatronic Design | Debugging | Design Skills & Solution Ideation

SOFT SKILLS

Communication | Teamwork | Project Management | Problem Solving | Multitasking

EXTRACURRICULARS & HOBBIES

Rock climbing | Gymnastics | Coffee making & Drinking | Crocheting | Yoga | Slacklining | Painting/Drawing | Reading | Hiking, Traveling, & Being Outdoors