

# Anthony Bynum

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## Education

### Harvard University

Cambridge, MA

Bachelor of Science: Mechanical Engineering. GPA: 3.7

May 2028

Relevant Coursework: Computer-Aided Machine Design, Intro to EE, Intro to the Mechanics of Solids, Intro to Fluid Mechanics and Transport Processes, Thermodynamics, Digital Fabrication, and Humanitarian Design Projects.

### Hilton Head Island High School

Hilton Head Island, SC

International Baccalaureate Diploma. Weighted GPA: 5.276; Unweighted GPA: 4.0

June 2024

## Engineering Experience

### Harvard School of Engineering and Applied Sciences

Feb 2025 – present

Teaching Assistant for ES51: Computer-Aided Machine Design

- Introduced 40+ students to topics such as CAD, 3D printing, GD&T, technical drawings, and machining (CNC and manual).
- Facilitated hands-on learning in weekly labs, provided office hours, and graded homework, design notebooks, and projects.

## Engineering Projects and Clubs

### Harvard Rocket Propulsion Group

Fluids and Integration Team Lead

Sep 2024 – present

- Constructing a high-power, liquid-bipropellant rocket, using CAD, machining tools, and 3D printing.
- Co-designed a liquid rocket injector in SolidWorks, incorporating CFD analysis results to enhance combustion efficiency.

### Engineers Without Borders

Kenya Project

Sep 2025 – present

- Use Revit to design and model water kiosks for EWB's Kenya project, improving clean water access in remote villages.

### Harvard Undergraduate Automotive Society

Brake Pedal Team

Sep 2024 – Sep 2025

- Designed the brake pedal system for a Formula SAE car in SolidWorks, balancing space limits with comfort and safety.

### Harvard Society of Black Scientists and Engineers

Mentorship Chair

May 2025 – present

- Facilitating mentorship and engagement among students by coordinating bonding and peer advising programs.

### Course Projects

Sep 2024 – present

- SCARA Robot Arm: Designing and building a 3-DOF SCARA robotic arm with a single-actuated gripper independently, integrating mechanical, electrical, and software components for precise automated motion.
- Competition Robot: Spearheaded the design and prototyping of a competition robot, utilizing CAD, 3D printing, and laser cutting to achieve a top 3 finish in the course competition.
- Bionic Hand: Led circuit design and troubleshooting for a myoelectric prosthetic hand using EMG signals, with analog filtering, amplification, and Arduino-based gesture control.

## Research Work

### MIT Department of Aeronautics and Astronautics

Sep 2025 – present

- Conducting wind-tunnel experiments and aerodynamic analyses to optimize passive dust-mitigation in off-grid solar systems.
- Implementing API calls, completing the user registration system, and advancing the frontend for the Ashesi Solar Monitoring Network (ASMONET) to support expanded solar and weather data collection and analysis in Ghana.

### International Baccalaureate Extended Essay

Sep 2023 – Apr 2024

Conducted independent aerodynamics research, analyzing the impact of airfoil angle of attack on lift and drag forces, modeling the airfoil after a Piper PA-28 aircraft.

## Skills

**Technical:** CAD SolidWorks Design Associate (CSWA), Revit, Python, HTML, CSS, and PHP, familiarity with C++.

**Machine Shop:** 3D printer, laser cutter, soldering, mill, lathe, drill press, bandsaw, most power tools.

**Languages:** English (fluent), Arabic (advanced), Spanish (intermediate).