# BENJAMIN (BEN) R. SCHROEDER

(301) 787-6980 ● bschroeder@college.harvard.edu ● linkedin.com/in/benrschroeder ● benschroeder.me ● U.S. Citizen

## EDUCATION

**HARVARD COLLEGE** **September 2020-May 2024**

B.S. in Mechanical Engineering (GPA 3.71) Cambridge, MA

**Relevant Coursework:** Computer-Aided Machine Design, Solid Mechanics, Intro Electrical Engineering, Python

## SKILLS

**Hardware:** CNC Mill, Lathe, Silicone Casting, Soldering, Laser Cutting, 3D Printing, Band Saw, Drill Press
**Software:** SolidWorks, NX, Python, Arduino, MATLAB, LaTeX, HTML/CSS, Adobe Photoshop
**Certifications:** Private Pilot Certificate Training, Open Water Diver SCUBA Certification

## PROJECTS

**HARVARD SATELLITE TEAM** **September 2020-Present**

Engineering team developing a CubeSat to test a nitinol instrument deployment mechanism in orbit Cambridge, MA

*Payload Team Lead*

- Led a ten-person team to design a shape-memory alloy instrument deployment mechanism in Solidworks
- Fabricated prototypes integrating PCBs, IMUs, and Nitinol wire to test SMA deployment via Joule heating

*Bus Team Member*

- Evaluated and selected central on-board computer to meet mission goals and LEO environmental constraints
- Modelled CubeSat orbital performance in Systems Tool Kit to analyze ground communication capabilities
- Co-authored white paper on HST's CubeSat development for submission to NASA's CubeSat Launch Initiative

**HARVARD ROCKET PROPULSION GROUP** – *Founder, President* **June 2021-Present**

Engineering team developing liquid bi-propellant engines toward hot fire and flight tests Cambridge, MA

- Recruited a 12-person team and raised $3000 to design a 2-5 lbf copper heat sink spark torch igniter and fuel feed system with nitrogen-pressurized liquid ethanol and gaseous oxygen
- Interviewed more than two dozen collegiate and industry propulsion experts and conducted an extensive literature review toward the formation of a comprehensive liquid rocket propulsion project proposal

**PROJECT BOOM** **June 2020-September 2021**

Multi-university student project with industry advisors fabricating first student-built supersonic UAV Washington, DC

*CAD Team Lead*

- Formed and led the CAD sub-team to centralize and execute design deliverables for Project Boom
- Co-authored AIAA technical paper on supersonic UAV design as a platform of study for high-speed flight

*Aerodynamics Team Member*

- Modelled and presented the initial aero body CAD selected by leads for optimization toward supersonic flight
- Optimized aerodynamic performance using Star CCM+ CFD, MATLAB area rule plotting script, and Solidworks

**MARET SCHOOL ENGINEERING TEAM** – *Co-Leader* **September 2017-June 2020**

Engineering team developing an underwater ROV toward MATE ROV robotics competition Washington, DC

- Designed camera and electronics mount CADs for pressurized integration with waterproof avionics container
- Oversaw the team's expansion from 12 to 30 members tackling novel underwater robotics challenges

## EXPERIENCE

**AIR FORCE RESERVE OFFICER TRAINING CORPS** – *Cadet Third Class* **September 2020-Present**

Rigorous USAF leadership development program hosted at nationally competitive Det. 365 at MIT Cambridge, MA

- Won an award in my first semester recognizing performance in the top 10% of my cadet class
- Co-founded the Schriever Space Society, a national cadet program for service and space advocacy

**HARVARD COLLEGE CONSULTING GROUP** – *Analyst* **September 2020-Present**

Competitive student consulting group serving clients from Fortune 10 companies to federal agencies Cambridge, MA

**LONESTAR LUNAR DEVELOPMENT** – *Research Intern* **July-September 2019/2020**

Start-up assembling private industry for the purpose of developing lunar base infrastructure Washington, DC

- Delivered a comprehensive industry analysis of LEO and Lunar utilization technologies to company leadership