BENJAMIN (BEN) R. SCHROEDER

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EDUCATION

HARVARD COLLEGE   **September 2020-May 2024**
B.S. in Mechanical Engineering (GPA 3.75)   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 and Nitinol wire to test SMA deployment via Joule heating
- Constructed a gravity-offloading test stand with integrated thermocouples for payload testing
Bus Team Member
- Modelled CubeSat orbital behavior in Systems Tool Kit and selected central OBC based on mission objectives
- 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 $8000 to design a 2-5 lbf heat sink spark torch igniter test stand 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 to form a comprehensive rocket propulsion project proposal accepted by Harvard SEAS

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 Space Force Scholar's Society, a national cadet program for space service and space advocacy

HARVARD COLLEGE CONSULTING GROUP – *Associate*   **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