

Emily Dunn

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PROFILE

Undergraduate at Duke University studying mechanical engineering and physics. Interested in rocket propulsion and nuclear powered spacecraft, experience in researching hydrogen generation and storage devices, reiterative design of medical devices, and engineering education.

EXPERIENCE

Biomedical Research Assistant 2023-Present
Center for Global Women's Health Technologies
Department of Biomedical Engineering
Duke University, Durham NC
Designing a cervical mucus collection device to compliment a speculum-free cervical cancer detection process being developed by a third year PhD student
Developed reiterative testing procedure to determine device performance

Instructor for Duke Pre-College Program 2023
Duke University, Durham NC
Developed curriculum and taught three sessions of an advanced course in astrophysics and rocketry course
Implemented hands-on learning opportunities and research experiences for middle school students

Mentor for Duke Ignite 2022-2023
Duke University, Durham NC
Guided five high schoolers through the engineering design process to address a challenge of their choosing
Provided feedback and appropriate resources to address challenges based on my engineering experience

Engineering Research Intern 2021-2022
Born Global Biomimicry Educational Institute
Collaborated with an international student research team on a clean-energy engineering project
Applied principles of biomimicry by using mechanisms of microorganisms and insects to address current difficulties in sustainable hydrogen storage

EDUCATION

B.Sc in Mechanical Engineering and Physics

2022-2026

Department of Mechanical Engineering and Materials Science

Department of Physics

Duke University, Durham NC

Completed 2nd year 1st semester

HS Diploma

2018-2022

Project Lead the Way Engineering Endorsement

Lamar Consolidated High School, Rosenberg, TX

Salutatorian, GPA: 4.7365

SKILLS

- Languages : Python, Java, Maple, Arduino Coding in C++, LaTex
- 3D Design : Solidworks, Onshape, Inventor/AutoCAD, Fusion 360
- Woodworking
- Circuitry and wiring
- Soldering
- Microsoft Office, Google workspace

PROJECTS

- **Smartificial Leaf** Wireless tandem photoelectrochemical cell for alternative hydrogen generation in the Duke Smart Home
- **NAE Grand Challenge: Provide Energy from Fusion** Undergraduate research and entrepreneurial project exploring the application of nuclear fusion technology for rocket propulsion
- **Mucus Collector for Cervical Cancer Detection** Device designed in Solidworks with optimal structure to trap mucus, allowing visualization of cervix
- **Hydrogen Hive** Research project exploring the applications of biomimetic thought for collecting and storing hydrogen with a focus on microorganisms and insects. Presented at the 2022 World Biodiversity Forum in Davos, Switzerland

LEADERSHIP

- **Project Manager of the Duke Smart Home** Assisting Smart Home residents and club members in developing sustainable technology projects for households to be demonstrated in the Duke Smart Home

- **Vice President of the Duke Women's Wrestling Club** Developing a space for women to wrestle at Duke with the goal of having an official NCAA team in the future
- **Duke Engage Liaison** Accompanied Duke professor to Bahia, Brazil to determine effective itinerary for Duke Engage program centered around capoeira and educational outreach