HALEY HIGGINBOTHAM

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PROFILE

Extremely dedicated and self-motivated student/athlete/researcher with a passion for creative problem solving and demonstrated skill in engineering and design.

EDUCATION

Massachusetts Institute of Technology **Class of 2021**
Cambridge, MA

- Candidate for Bachelor's of Science in Bioengineering with a minor in Mechanical Engineering
- 5.0 GPA
- Certified graduate of the Gordon-MIT Engineering Leadership Program
- Relevant Coursework: Medical Device Design, Differential Equations, Design and Manufacturing I & II, Organic Chemistry, Design for Scale, Biological Engineering Design

SKILLS

- **Computers:** CAD/CAM – Solidworks, Moldflow, Microsoft Office, JAVA, Python, Arduino, Matlab/Octave, LabVIEW
- **Biology:** wet-lab techniques such as pipetting, gel electrophoresis, DNA isolation, and crosslinking
- **Fabrication:** machining, laser cutting, 3d printing, vinyl cutting, glass-working/fusion, soldering & solder pasting, gold bonding, some welding, some carpentry

RESEARCH EXPERIENCE

MIT Langer/Traverso Lab **Sept 2021 – present**
Undergraduate Researcher Cambridge, MA

- Exploring optimal parameters for electrical stimulation of nerve repair
- Performing animal testing and data processing

MIT Center for Biomedical Engineering **Sept 2019 – Sept 2020**
Undergraduate Researcher Cambridge, MA

- Investigated the role of ECMO circuit design in immunothrombosis
- Explored difficult intubation scenarios and potential modifications to contemporary laryngoscopes to improve visualization and manipulation of tissues

Bioelectronics Group, MIT **May 2018 – May 2020**
Undergraduate Researcher Cambridge, MA

- Built a treadmill and trained rats and mice in order to investigate the recovery of locomotor function after spinal cord injury
- Aided in the fabrication of custom neural probes
- Implemented a cloud-hosted neural network to perform motion capture video analysis

BioInstrumentation Group, University of Auckland **Summer of 2019**
Intern Auckland, NZ

- Investigated methodologies for characterizing the optical properties of materials for use in soft robotics
- Immersed myself in Kiwi culture

Newman Lab for Biomechanics and Rehabilitation, MIT **Oct 2017 – Dec 2018**
Undergraduate Researcher Cambridge, MA

- Used LabView to interface with a therapeutic robot's NI cRIO controller and adapt the robot to provide a platform for investigating auditory feedback in control of fine locomotor functions

Young Scholars Program (YSP) **Summer of 2016**
Researcher and Student Tallahassee, FL

- Investigated the effects of purmorphamine on chromatin structure at Florida State University (FSU)
- Produced research paper and conference poster, and presented research at public poster session

WORK & VOLUNTEER EXPERIENCE

Greater Boston Food Bank **May 2018 - present**
Volunteer Food Drive Coordinator Cambridge, MA

- Organizing an annual end-of-semester food drive benefitting the Greater Boston Food Bank to reduce food waste on campus and help alleviate food insecurity in the local community

MIT Bioengineering Department **Aug 2020 - present**
Volunteer Associate Advisor Cambridge, MA

- Providing academic and life advice for sophomores entering the Bioengineering major

Course: Design and Manufacturing II **Sept 2020 - present**
Lab Assistant Cambridge, MA

- Supporting the teaching and machine shop staff by facilitating the use of equipment and learning amongst students in the class

Habitat for Humanity **2014 - present**
Volunteer Titusville, FL

- Helped build houses for local families in need by learning
- and performing tasks such as framing, waterproofing, landscaping, and installing insulation

DLEE Designs, LLC. **June 2016 – Sept 2017**
Part-time Private Contractor Cocoa, FL

- Executed proof of concept studies and integration of hardware and software
- responsibilities include software development, data analysis, and 3D modeling

Indian River City United Methodist Church **July 2011-15 & 2017**
Volunteer Teacher/Assistant Titusville, FL

- Led a class of about 25 kindergarteners through 7th graders during a summer program which focuses on teaching youth new skills

AFFILIATIONS

- MIT Women's Lightweight Crew
- Tau Beta Pi Engineering Honor Society
- Society of Women Engineers
- Gordon Engineering Leadership Program

AWARDS/HONORS

2021

- Submission accepted to showcase at 2021 Design of Medical Devices Conference

2020

- Picked for U23 U.S. Women's National Rowing Team Selection Camp
- 1st place in U23 lightweight women event at CRASH-B World Indoor Rowing Championships

2019

- Fung Scholar
- Invited to be Master of Ceremonies at Fung Scholars Leadership Conference
- Fastest 2k erg time in MIT team history

2018

- Johnson & Johnson Scholar
- Fastest 5k erg time in MIT team history

2017

- National Merit Scholarship
- NASA College Scholarship
- Brevard Association of School Administrators and Affiliates Scholarship
- Coach Bernie Sher Memorial Scholarship
- Evelyn B. Johnson Memorial Scholarship
- Air Force Technical Applications Center Company Grade Officer Council Scholarship

References Available Upon Request