**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**

**Class of 2021**

Cambridge, MA

**Massachusetts Institute of Technology**

* 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