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John R. Donahue III

Portfolio and more information at: donahuejohn.com

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Education

Northeastern University, Boston MA August 2022, GPA: 3.55

Candidate for Bachelor of Science in Mechanical Engineering and Physics
Candidate for Master of Science in Mechanical Engineering with Concentration in Mechatronics

Honors: 2018 Matianuck District Eagle Scout of the Year, Dean's Scholarship Recipient, Dean's List Scholar

Coursework: Microelectromechanical Systems, Fluid Mechanics, Heat Transfer, Thermodynamics, Mech. Eng. Computation and Design (FEA), Statics, Adv. Mechanics of Materials, Electronics, Modern Physics, Graduate Math Methods

Activities: Paradigm Hyperloop, Beta Gamma Epsilon, American Society of Mechanical Engineers (ASME)

Technical Skills

Computer: SolidWorks (Design and FEA), ANSYS, MATLAB, Arduino, Creo, AutoCAD, Autodesk Inventor, C++

Manufacturing: Soldering, 3D Printing, Lathe, Band Saw, Miter Saw, Jigsaw, Drill Press, Sanders, Standard Power Tools

Certifications: Certified SolidWorks Associate (CSWA), Shimano T.E.C. Certified, American Red Cross First Aid/CPR/AED

Experience

SharkNinja – Needham, MA January 2020 – June 2020

Mechanical Engineering Co-op

- Designed, prototyped, and tested iterative models of motor assemblies and impellers to optimize airflow efficiency and performance based on CFD and experimental results from pressure mapping and air watts testing
- Worked with both brushless DC motors and universal motors to meet the constraints of different projects
- Designed and built a new user interface/control prototype utilizing Arduino and sourcing my own electrical components (NDA)
- Prototyped various nozzle components using Solidworks and rapid prototyping to improve an existing model of vacuum to address customer feedback alongside Design for Manufacture criteria
- Tested robot vacuum navigation systems through several iterations in order to evaluate progress and failure points
- Worked remotely to design and build a new kind of testing rig from scratch that provides quantitative values for a complex performance criterion at up to 30000 samples per second (NDA)

Paradigm Hyperloop - Boston, MA September 2018 – January 2020

Mechanical Designer

- Designed in SolidWorks and built a fully functional hyperloop pod to compete in the annual SpaceX competition as part of an international collaborative team (Placed 8th in the World in 2019)
- Co-led the design and Finite Element Analysis (FEA) of an aluminum pod chassis to withstand acceleration to 300mph and a deceleration of 7g's with an ultimate factor of safety of 3 or higher for the 2019 competition
- Co-led the research and design of a carbon fiber reinforced polymer (CFRP) chassis to provide structural support for accompanying subsystems while withstanding acceleration, braking, and vibrational forces for the 2020 competition
- Created clear and accurate documentation of work throughout the process for communication to manufacturers, SpaceX officials, and team members across 5 time zones

Urban AdvenTours - Boston, MA March 2019 – Present

Service and Retail Associate, Tour Guide

- Diagnosed problems and performed repairs ranging from flat tire fixes to entire drivetrain overhauls utilizing Shimano T.E.C. methods, and provided quality service and recommendations on mechanical components for customers
- Prepared rental bikes and guided guests on a historical Boston bike tour while ensuring a safe cultural experience

Personal Projects

DIY Electric Longboard Present

- Researched various components and design criteria using the internet and previous BLDC experience
- Utilized a design matrix to optimize a board design to fit my personal speed, range, and cost criteria
- Sourced parts from various suppliers to integrate at home

Home Improvement January 2019-Present

- Performed various projects managing the upkeep and improvement my 5000 sq. ft. Victorian Brownstone from 1889 including replacing floor joists, installing over 1200 sq. ft. of new flooring in various rooms, repairing original woodwork by hand, updating network and electrical infrastructure, and building new furniture among others for fun and to improve practical skills

Eagle Project: Outdoor Pavilion August 2017- April 2018

- Planned, budgeted, and led a $1000, 150 man-hour project to remove rotting debris and rebuild an 80 year old pavilion at a local community center to reclaim the space for outdoor events and fundraisers

Background and Interests: Outdoor sports, backpacking, DIY home improvement, reading