Muriel McWhinnie

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EDUCATION

Massachusetts Institute of Technology — **Cambridge, MA**
June 2024
GPA: 5.0/5.0
- Candidate for a Bachelor of Science in Mechanical Engineering and a Minor in Business Analytics
- Relevant Coursework: Mechanics and Materials I, Differential Equations, Introduction to Computer Science and Programming in Python, Dynamics and Control I, Electronics for Mechanical Systems, Numerical Computation for Mechanical Engineers, Introduction to Design, Thermal-Fluids Engineering I, Design and Manufacturing I, Optimization Methods in Business Analytics

The Masters School — **Dobbs Ferry, NY**
2012 – 2020
GPA: 4.0/4.0
- Graduated with distinctions in English, Mathematics, and Science
- Awards: Yale University Book Award (2019), Cum Laude Society (2019), Excellence in French, Mathematics (2020), and Science (2020), Dean's List (2016-2020)

EXPERIENCE

MIT Global Engineering and Research Lab (GEAR Lab) — **Cambridge, MA**
Undergraduate Researcher on Desalination Team — May 2022 – Present
- Experimental design and field piloting of TRL-7 automated PV electrodialysis desalination system at the Brackish Groundwater National Desalination Research Facility in New Mexico. Involved test automation in Python, feedback control, and state machine control using Koyo CLICK PLCs.
- Design and fabrication of bench-top, home-scale reverse-osmosis desalination system hydraulics and electronics. Involved designing a PCB, developing a control scheme in Teensy/Arduino, and long-term data logging in InfluxDB.

MIT HAUS (in MIT Laboratory for Manufacturing and Productivity) — **Cambridge, MA**
Undergraduate Researcher — June 2021 – May 2022
- Researched 3D printing and additive manufacturing for the large-scale production of low-cost homes from recycled plastic. Designed user-centered home concepts based on ethnographic research.
- Conducted structural analysis of low-cost 3D printed homes from rPET which involved CAD, finite element analysis, and static and dynamic simulations in SolidWorks.

MIT Motorsports — **Cambridge, MA**
Aerodynamics Team Member — Fall 2021 – Present
- Design and manufacturing of aerodynamic components for race car of MIT's Formula SAE team.

Halstead Real Estate — **New York, NY**
Property Development Marketing Research Intern — Summer 2019
- Conducted market research, assisted with model unit photoshoots, and provided design input.

Columbia University: Sustainable Urbanization Summer Program — **New York, NY**
Student Researcher — Summer 2018
- Created and presented an economic development plan for the Harlem 125th St BID.

PROJECTS & AWARDS

MIT Department of Mechanical Engineering Student Award:
International Design Competition — **Cambridge, MA**
Spring 2022
- One of the six students who received this award in Design and Manufacturing I (2.007), a class of over 100 students, for demonstrating outstanding robotic design in the class final competition.

Mobile Autonomous Systems Lab (6.146, MIT): First Place — **Cambridge, MA**
January 2022
- Working in a team of five students, I was responsible for the mechanical and electronic design of an autonomous robot that color sorted, collected, and dispensed balls while navigating a board.
- Integrating A* Pathfinding and PID position control, our team won first place in the final competition after 4 weeks of iterative design, rapid prototyping, and testing (http://maslab.mit.edu/2022/).

Electronics for Mechanical Systems (2.678, MIT): First Place — **Cambridge, MA**
December 2021
- Built an autonomous line-following robot with my partner using an infrared reflectance sensor array, a position control servo we built, and proportional motor control. Our robot placed first in a class of over 50 students and completed the course with the second fastest time in class history.

SKILLS & INTERESTS

Software: MATLAB | LaTeX | Microsoft Office Suite | Python | Julia | Arduino | QGIS | Autodesk Inventor | SolidWorks | Fusion 360 | Sketchup | Siemens NX | XFOIL | Rhino | PLC code writing and development | PCB Design | InfluxDB | Node-RED
Manufacturing: 3D Printing | Laser Cutting | Rapid Prototyping | Mill | Lathe
Interests: Product design | Manufacturing | Mechatronics | Water treatment and desalination | Real estate development | Sustainable design | Skiing | Horseback riding | Piano
Languages: Proficient in French