Alden Luscher

Mechatronics Engineering Co-Op Student

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Education

September 2020 – Present

Bachelor of Mechatronics Engineering | McMaster University, Hamilton ON

- Currently enrolled in Level 3 of a 4-year Mechatronics Engineering Co-op Program
- Awarded the Joseph Ip Entrance Scholarship and the Joseph and Amy Ip Undergraduate Research Experience Award for demonstrating leadership experience and involvement in extracurricular activities as well as admission average exceeding 95%

Relevant Course Work

- Programming for Mechatronics
- Data Structures and Algorithms
- Embedded Systems Design
- Analog and Digital Circuits
- Integrated Cornerstone Design Projects in Engineering

Experience

May 2022 – August 2022

R & D Engineer | Microbix Biosystems Inc, Mississauga ON

- Responsible for the creation and implementation of multiple systems involving robotics, programming in **python and C**, electronics, statistics, and laboratory automation
- Demonstrated strong responsibility and communication skills while being entrusted with the development of a **C-based** alarm system to monitor critical products
- Worked collaboratively with colleagues to implement a **Python and Raspberry Pi based** robotic pipetting system to improve upon existing manual procedures

May 2021 – August 2021

Research Assistant | Dr. Joey Kish, Centre for Automotive Materials & Corrosion, McMaster University, Hamilton ON

- Improved independent research skills by examining corrosion inhibition techniques and chemical processes
- Demonstrated strong self-discipline and communication skills by conducting independently supervised material science experiments on behalf of my supervisor
- Exercised teamwork and leadership skills by working collaboratively with a team of undergraduate researchers and providing training

Projects

August 2022

Gradient Filling Device @ Microbix

- Worked independently to design and implement a gradient filling system from the ground up to improve upon existing processes and increase yields
- Gained hands on experience **building electronic circuits**, programming **embedded systems in C**, and fluidic systems design
- Was entrusted with independently sourcing parts, developing software, and evaluating the system

June-July 2022

Assay Process Automation @ Microbix

- Worked in collaboration with the quality control department to automate various assay processes
- Designed custom **Python-based backend and frontend** software to control the robots
- Successfully wrote **various applications in python** to **control and calculate equipment parameters** for use by quality control staff
- Evaluated the performance of each automated system via data collection and various **statistical analyses**
- Was responsible for performing **quality assurance** on each system to determine suitability for product production

Skills

Software & Design

- Extensive experience with Excel, Microsoft Word, and PowerPoint
- Experience with **Python, C/C++, JavaScript**
- Experience with **Arduino and other STM32 microcontrollers**
- Competent with **Autodesk Inventor and Fusion 360**
- Academic knowledge of Linux