BENJAMIN **DUO**

Candidate for Bachelor of Applied Science

MECHATRONICS ENGINEERING | UNIVERSITY OF WATERLOO

[647] 868-8758
blduo@uwaterloo.ca
linkedin.com/in/benjamin-duo
github.com/benduo99

Enthusiastic engineering student with experience in Computer Aided Design and **over 7 years** of manufacturing. Self-driven and consistently gets work finished on time. Eager to develop and apply new skills to overcome any given challenges.

EXPERIENCE

Technician | Environment and Climate Change Canada

May 2018 – August 2018

- Designed PCBs to test the software of a sensor by simulating the inputs of varyingly sized cloud particles at different rates.
- Manufactured mounts to support multiple weather sensors to endure the climate of Iqaluit.

Wading Pool Attendant | City of Toronto

March 2016 – September 2016

- Maintained a safe and clean pool environment while remaining attentive to upwards of 50 patrons.

PROJECTS & EXTRACURRICULARS

University of Waterloo Alternative Fuels Team | University of Waterloo

January 2018 – Present

- Used MATLAB to write scripts to predict suspension behaviour. Created a rudimentary PID controller using Simulink.
- Designed an interfacing device to navigate the car computer in NX11.
- Built several camera mounts to inspect the behaviour of the car's suspension.
- Designed, built and installed mounts for fuel filter pumps.

University of Waterloo Robotics | University of Waterloo

September 2017 – Present

- Designed a robot to follow at grayscale line while using a photoresistor to detect different shades to play different music notes.
- Learning ROS and Linux to eventually program communication protocols for the Mars Rover to communicate with the base station.

Robot in 3 Days | University of Waterloo

January 2018

- Designed and built a robot in 72 hours to compete in the FIRST competition.
- Designed the robot's intake mechanism and shooter component, built the elevator system for the shooter and manufactured parts for various of the robot.

Guitar Playing Robot | University of Waterloo

October 2017 – November 2017

- Created a robot that can read tablature and play a guitar.
- Coded in C++ and C so the robot can calibrate and move a mechanism to the correct fret and correct timing. Code was shared between the group using Git.
- Built the calibration hardware, fret mechanism, hard stops for the strummer and the robot's base.

FIRST Robotics Team 854 | Martingrove Collegiate Institute

September 2015 – June 2017

- Machined parts using the band saw, drill press, and CNC machine to create dimensioned parts like aluminum frames and Lexan covers.

OUALIFICATIONS

Proficient:

- AutoCAD
- SolidWorks
- NX11
- MS Office
- C++
- Band Saw
- Drill Press
- Soldering

Familiar:

- PCB Design
- Lathe
- Mill
- CNC
- Arduino
- Linux
- ROS
- MATLAB
- GD&T
- C
- Python
- Git
- HTML/CSS
- JavaScript

STRENGTHS

- Leadership
- Problem Solving
- Critical Thinking
- Teamwork
- Creativity
- Time Management

ACHIEVEMENTS

Overall Best Design

University of Toronto Engineering Design Challenge | 2016

- One day challenge to use the engineering process to create a prototype and present the solution.

Second Place

Professional Engineers Ontario Engineering Idol | 2017

- Created a prototype electrical grid

AP Scholar with Honour

College Board | 2017

- Calculus BC: 5
- Physics 1: 5

INTERESTS

- Painting (Oil, Acrylic, Gouache, Watercolour)
- Piano (RCM grade 8)
- Guitar (Fingerstyle, self-taught)
- Violin/Viola (High school orchestras)
- PC Building
- Robotics
- Frisbee/Badminton