





Nicholas Drazso

Mechatronics Engineering – University of Waterloo

 Design Portfolio |  ndrazso@uwaterloo.ca |  905-244-1804 |  Nicholas Drazso

SKILLS

- SolidWorks (3 years)
- Fabrication (10 years)
- 3D Printing (1 year)
- C++ (2 years)
- ROS2 (4 months)
- Linux (6 months)
- MATLAB (4 months)
- Java (2 years)
- Arduino (2 months)

EXPERIENCE

Mechanical Engineering Intern | BotBuilt | Durham, NC, USA *Sept 2022 – Jan 2023*

- Designed autonomous end effector tester using a pneumatic circuit, force sensors, and Raspberry Pi
- Created assembly/testing/troubleshooting manuals for 5 end effectors for technicians
- Made 10+ major design changes to 5 different end effector designs leading to increased scalability
- Tested robot using ROS2 which led to motion planning and computer vision improvements
- Configured 15 Raspberry Pi's using Ubuntu and Git for various end effectors and robots
- Worked 12h+ days for a month to replicate robotic system utilizing mechanical assembly, electrical, carpentry, and welding skills to hit major deadline

Mechatronics Engineering Intern | Pure Technologies | Mississauga, ON *Jan 2020 – May 2020*

- Independently assembled robot upgrade consisting of 120+ parts 75% faster than scheduled
- Utilized IP/TCP to troubleshoot ARM Cortex system over fiber and ethernet to prepare robot
- Setup, ran, and documented 10+ mechanical tests and constructed test jigs for robot R&D

Mechanical Team Member | Waterloo | Waterloo, ON *Sept 2019 – Sept 2020*

- Developed brake testing test rig using encoders and software with C++
- Led carbon fiber monocoque research project to reduce the pods weight by 40%
- Redesigned the frame to allow for a new braking system that doubled the braking power
- Developed FMEA document and tests for the frame and braking subsystems

Mechanical Engineering Intern | EM Dynamics | Scarborough, ON *Sept 2020 - Jan 2021*

- Designed and converted 100+ 3D models into 2D manufacturable sheet metal parts using SolidWorks
- Led custom millwork project for a large office renovation, finishing 2 weeks ahead of schedule
- Created DFM document for best practices for Clearpath Robotics mechanical engineering team

Lead Paintball Marker Technician | PB Solutions+ | Oshawa, ON *June 2012 – Sept 2019*

- Successfully started and operated own business for 7 years
- Managed a team of 3 people in fast paced environment of up to 800 players
- Repaired electronic, pneumatic, and mechanical assemblies within paintball guns

PROJECTS

Pinball Machine | First Year Design Project *3 Weeks – Nov 2019*

- Created ball release and launch mechanism to autonomously launch pinballs onto the playing field
- Developed C++ software that analyzed 4 sensors and controlled game logic/flow for multiple modes
- Includes user-controlled flippers and a ball detection mechanism to count and recover pinballs

Linear Potentiometer | Second Year Design Project *1 Week – Mar 2023*

- Created a linear potentiometer that utilizes the voltage divider principal to measure length
- Calibrated using multimeter voltages and excel resulting in an accuracy of +/- 0.5cm
- Used SolidWorks to design all components to prepare for machining and 3D printing