





Nicholas Drazso

Mechatronics Engineering – University of Waterloo

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

SKILLS

- SolidWorks (2 years)
- OnShape (4 months)
- Fabrication (10 years)
- 3D Printing (8 months)
- C++ (2 years)
- ROS2 (4 months)
- Linux (6 months)
- Java (2 years)
- PLC (2 months)

EXPERIENCE

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

- Designed pneumatic circuit and force transducer test rig to test end effectors autonomously
- 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
- 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
- Routinely worked 12h+ days 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 | *Waterloop* / *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*

- Houses 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

Trash Sort | *New Hacks Hackathon* *24 Hours – Feb 2020*

- Software analyzes an image and displays to the user if it is garbage or recycling
- Developed back end using Google Vision API and SQL database

HOBBIES

- Hockey, Powerlifting, Chess, Poker