Nicholas Drazso

Mechatronics Engineering – University of Waterloo

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

SKILLS

- SolidWorks (2 years)
- Fabrication (10 years)
- 3D Printing (8 months)
- C++ (2 years)
- Linux (4 months)
- ROS2 (2 months)
- Java (2 years)
- Soldering (8 months)
- Arduino (2 months)

EXPERIENCE

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

- Constructed 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 manuals for 5 end effectors which will be used by technicians
- Made 10+ major design changes to 5 different end effector designs leading to increased scalability
- Created and managed a 3D printing queue of 400+ parts successfully printing all parts by 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
- Established new QA process, increasing productivity by 40%

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***

- Repaired electronic, pneumatic, and mechanical assemblies within paintball guns
- Managed team of 3 people, teaching troubleshooting techniques and repair procedures
- Successfully started and operated own business for 7 years, servicing events up to 800 people

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, Reading, Chess, Rubik's Cubes (in under 25 seconds)