Clayton **Haight**

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University of Waterloo 3.9/4.0 GPA
BASc – Mechatronics Engineering, 2024

Skills

Design: (7 years) SolidWorks CSWP, Catia V5, NX, Tolerance Analysis, Material Selection, 30+ projects
DFM: (6 years) Design for CNC Mill/Lathe, Sheet Metal, 3D Printing, Welding, Casting, Injection Molding
Drafting: (5 years) Annotated Drawings, GD&T (ASME Y14.5), BOM
CAE/Software: (3 years) FEA, CFD, ANSYS, MATLAB, PDM, Object oriented programming (C++, Python)

Experience

Gastronomous
Oakville, ON
May – Present

Lead Mechatronics Engineer

- Designed and constructed prototype of a fully autonomous pasta kitchen with 2 FANUC robots to show off the capabilities of robotics to restaurant companies, utilizes pneumatics, servos, and a PLC
- Designed a linear robot transfer unit for a FANUC LR Mate robot capable of supporting swinging loads and moving at speeds up to 4m/s, all the while being food safe

UW FSAE
Waterloo, ON
2019 - Present

Suspension Team Member

- Design reviews, tolerance analysis, and clearance studies on 400+ parts in the 2000+ part main assembly
- Utilized PDM and versioning software used to keep track of all parts, drawings, assemblies, and iterations

Hunter Douglas
Brampton, ON
Jan – Apr 2020

Industrial Engineer

- Applied LEAN and 5S principles to increase efficiency by 2% across a department by rearranging the layout of manufacturing in AutoCAD
- Lead a large multiweek project moving around machines while keeping the factory running by meticulously organizing using scrum meetings and GANTT charts
- Designed fixtures, tooling, jigs, and material handling carts to aid workers and reduce wasted time

FIRST Robotics Team 1325
Mississauga, ON
2014 – 2020

Mentor & Captain

- Designed parts and sub-assemblies of 6 competitive robots using SolidWorks
- Ensured manufacturability in all my designs through industrial machines such as laser cutters, press brakes, CNC mills, lathes and more
- Mentored and managed a team of 40+ people, making sure everyone had a role in the project

Projects

See Portfolio Attached

CNC Router

- Designed and built a 24” x 30” CNC out of aluminum and steel tubing using SolidWorks
- Capable of cutting wood, plastic, and aluminum with tight tolerances up to 0.002”
- Researched and implemented an epoxy sand mixture to dampen vibrations throughout machine
- Studied topology optimization and FEA to optimize strength and rigidity throughout the design, improving force-displacement

COVID 19 Ventilator

- Designed and built a fully functioning ventilator prototype over the course of 10 days for the Code Life Ventilator Challenge, evaluated by doctors at the Ottawa General Hospital
- Constraints concerning material safety and sterilization techniques drove design from concept to final product
- Implemented features found in high end ventilators such as adjustable PEEP, safety alarms, and a touchscreen UI

4 Axis Origami CNC

- For my first-year mechatronics project I designed, assembled, and wrote code for an origami creasing CNC machine with 4 axes
- Implemented PID position control on the end effector, ensuring that it would move linearly at any angle

3D Printed Brushless Motor

- Custom designed BLDC motor using iron infused filament, with over 20 design iterations
- Analyzed circuitry with an oscilloscope to overcome multiple discrepancies and increase the efficiency

Custom Designed Car Body

- Went through industry process of sketching, carving from clay, 3D scanning and resurfacing a final model
- Learned about optimizing drag coefficient with SolidWorks flow simulation, achieved a drag coefficient of ~0.29

Awards

First Robotics Competition	– NASA Engineering Inspiration Award	3,690 Teams
First Robotics Competition	– Provincial District Winner	200 Teams
Gauss Math Competition	– Perfect Score (Tied for 1st)	~80,000 People

Honors

Kickstarter	Successful Funding of Project
Waterloo	Engineering Entrance Scholarship
Waterloo	Presidents Scholarship