Jonathan DiGiorgio

647-853-0102 | jddigior@uwaterloo.ca | linkedin.com/in/jonathan-di-giorgio/ | jonathandigiorgio.com

Technical Skills

CAD/FEA Software: Solidworks (CSWA), AutoCAD, Fusion360, COMSOL
Design Processes: GD&T, Drafting, FEA, Quality Assurance, Quick Prototyping
Manufacturing Processes: Laser Cutting, 3D Printing, Lathe, Mill, Drill Press, Angle Grinder, Engineering Drawings
Programming: Python (PyAutoGUI, OpenCV), C/C++, MATLAB, RobotC, HTML, CSS, Github, VS Code

Projects

Lithophane Picture Stand | *Solidworks, 3D Printing* May 2023 – June 2023

- Designed pictures that display only when lit, by using varying thicknesses in material to create different shades
- Used **Solidworks** to design a sleek LED housing with a lithophane mount, allowing for easy picture swapping
- Designed the product to be easily **3D printed** without supports, saving around 2 hours in print time

Autonomous Chess Robot | *Solidworks, AutoCAD, RobotC, Python* January 2023 – April 2023

- Lead a team of 4 to design a robot which autonomously plays pro-level chess against a live opponent
- Used **Python** for move detection (**OpenCV**), move computation, and robot communication (**PyAutoGUI**)
- Utilized **RobotC** and EV3 hardware to control gantry movement, resulting in a >95% succesful move rate
- Utilized **Solidworks**, **AutoCAD**, **3D printing** and **laser cutting** to create housings, racks, guides and more
- Conducted simulations using **Solidworks FEA** to determine the best structure for load distribution and tipping
- Created a work breakdown structure and Gantt chart for project management, resulting in timely completion

Magnetic Whirpool - Fishing Toy | *Solidworks, Machining, 3D Printing* September 2022 – December 2022

- Lead a team of 4 to design a fishing toy with a magnetically influenced whirlpool and spring-powered 'fishing rods'
- Made whirlpool mechanism using a motor, magnets, potentiometer and switch, sustaining a 15+ min vortex
- Used **drill press** and **saw** to construct the PVC housing for a pinball-like mechanism, resulting in a ∼70cm range
- Used **Solidworks** and **3D printing** for a reel mechanism that friction-fits into a ball bearing, storing 1m of reel
- Wrote a detailed technical report outlining the design process and viability of becoming a manufactured toy

Experience

QA Engineering Coop May 2023 – Aug 2023
S&C Electric Canada *Etobicoke, ON*

- Inspected high-voltage interrupt switches and subassemblies with **GD&T** drawings, leading to 0 defective returns
- Conducted audits, gauge calibration/R&R, hipot testing, and Rockwell hardness testing to uphold product quality
- Effectively maintained and tracked product quality using **Excel**, and job orders using **Oracle** Database
- Designed an inspection camera mount and collected data for a Dori AI project, automating package inspection

Waterloo Rocketry - Airframe Member Sep. 2022 – Present
University of Waterloo *Waterloo, ON*

- Propulsion safety through UV-light inspection and assembly of ball valves, used in the oxidizer loading system
- Working on the airframe subteam to machine and assemble a competition-ready rocket frame using carbon fibre

Class Representative Sep 2022 – December 2022
University of Waterloo *Waterloo, ON*

- Represented the 27' mechanical engineering class in divisional meetings to provide feedback on the course
- Helped 120 fellow students with any course-related issues, speaking on behalf of the student body

Education

University of Waterloo Waterloo, ON
Bachelor of Applied Sciences in Mechanical Engineering (95.0 GPA) *Sep 2022 – Present*