Cooper Cole

University of Waterloo, Candidate for BASc – Mechatronics Engineering, 2024
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SKILLS

Design: SolidWorks CSWA, Zemax Optic Studio, GD&T, AutoCAD, Optical Design, 3D printing, Soldering
Software: C/C++, Python, MATLAB, PLC, HTML, CSS
Tools: Git, Jira, Agile and Scrum frameworks

EXPERIENCE

Mechanical Engineering Intern (Incoming)
Cover Technologies Inc. | Los Angeles, CA — Jan 2023 – April 2023

- Preparing to make next generation of houses designed and manufactured in a factory

Mechanical Engineering Intern
Linamar Corp. | Guelph, ON — Jan 2022 – April 2022

- Designed a steel billet exchange assembly in SolidWorks that interfaces with pre-existing machinery on an automated manufacturing line, is easily fabricated, and meets ANSI/ISO safety standards
- Redesigned the factory's standard robot cell part nest using SolidWorks to improve manufacturability, cut down material cost and reduce assembly time by 50%
- Produced over 50 SolidWorks drawings to be sent off to fabricators, applying proper dimensioning, tolerancing and material specifications in both imperial and metric units
- Programmed automated manufacturing routines in robot cell PLC's and ABB robot control software

Optomechanical Engineering Intern
Inscopix Inc. | Palo Alto, CA — May 2021 – August 2021

- Designed a testing instrument using a laser and position sensitive detector (PSD) that measures the angular displacement of a Ø1mm MEMS mirror to analyze the effect of a sudden impact on the mirror
- Used Python and a .NET interfacing library to extract position data from a DAQ box to CSV file at up to 1kHz for graphical analysis and calibration of the measurement instrument
- Improved miniscope optics data models and conducted stray light analysis using Zemax Optic Studio to analyze transmission band shifting for large angles of incidence and the illuminance at the image sensor

Mechanical Engineering Intern
Vena Medical | Kitchener, ON — Sept 2020 – Dec 2020

- Analyzed thermal test data, and researched heat transfer to develop a solution that reduced the temperature of the endoscope body by 20% to meet safety standards and specification
- Contributed to the creation of an optical test bench and wrote test procedures and methods in accordance with ISO 8600 standards for FDA and Health Canada applications
- Created prototype endoscope parts and test bench components using SolidWorks and 3D printing

System Quality Assurance Intern
Virtek Vision | Waterloo, ON — Jan 2020 – April 2020

- Developed 30+ new test cases and authored test plans in Confluence, communicating complex ideas verbally and in writing
- Reorganized and managed an inventory of over 30 laser and vision projection systems to streamline testing and standardize inventory tracking
- Identified, investigated, and verified defects through exploratory testing and test cases; collaborating with software developers to resolve the defects

PROJECTS

Autonomous Checkers Robot — 2019

- Designed and built a robot to autonomously play a complete game of checkers through the implementation of mechatronics principles, as part of a 3-person team
- Constructed a 3-axis rack and pinion movement system and gripper with 95% retrieval rate using Tetrix and Lego EV3 and programmed in C with original checkers algorithm capable of capturing pieces