Cooper Cole

University of Waterloo, Candidate for BASc - Mechatronics Engineering, 2024

c4cole@uwaterloo.ca | redacted | coopercole.ca | linkedin.com/in/coopercole

SKILLS

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

EXPERIENCE

Optomechanical Engineer Intern   May – Aug 2021

Inscopix Inc | Palo Alto, CA
- Designed and fabricated an instrument to analyze the effect that sudden force has on a Ø1mm MEMS mirror, with the resolution to detect a 1mrad change in angular displacement of the mirror.
- Used Python and a .NET interfacing library to extract position data at up to 1kHz from a DAQ box to CSV file for graphical analysis and calibration of the measurement instrument.
- Developed a Python script to format bandpass filter transmission data with 7200 data points into DAT file for Zemax to improve the accuracy of miniscope optics models by 227%.
- Conducted stray light analysis of miniscopes using Zemax Optic Studio to analyze illuminance at the image sensor and transmission band shifting for large angles of incidence.

Mechanical Engineer Intern   Sept – Dec 2020

Vena Medical | Kitchener, ON
- 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.
- Teamed with 3 others to create an optical test bench and write 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 Analyst   Jan – April 2020

Virtek Vision | Waterloo, ON
- Identified, investigated, and verified defects through exploratory testing and test cases.
- Reported defects in Jira and collaborated with software developers to resolve the defects.
- 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.

PROJECTS

Autonomous Checkers Robot

- 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.
- Programmed in RobotC with an original checkers algorithm capable of capturing pieces.

AWARDS

University of Waterloo – Presidents Scholarship of Distinction, John Tattersall Memorial Scholarship