Cooper Cole

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Skills

Design: Siemens NX, SolidWorks, OnShape, Zemax OpticStudio, FEA, Sheet Metal, GD&T, 3D Printing
Programming: Python, C, C++, MATLAB, OpenCV, NumPy, SciPy, Scikit-Learn, HTML, CSS, SQL, Git, LaTeX

Work Experience

Mechanical Engineering Intern, Cover Technologies – Los Angeles, CA Jan 2023 – Aug 2023
- Mechanical design for the next generation of factory-manufactured houses, collaborating with product, architecture, manufacturing, and supply chain teams
- Designed HVAC, supply plumbing, and AC/DC electrical systems using Siemens NX, ensuring compliance with code and focusing on manufacturability and modularity
- Produced over 100 engineering drawings for the home envelope and components, incorporating feedback from manufacturing and supply chain

Mechanical Engineering Intern, Linamar Corp – Guelph, ON Jan 2022 – Apr 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%

Optomechanical Engineering Intern, Inscopix Inc – Palo Alto, CA May 2021 – Aug 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
- 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

Optomechanical Engineering Intern, Vena Medical – Kitchener, ON Sept 2020 – Dec 2020
- Analyzed thermal test data and 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

Projects

SpinStop 2023/24 | spinstop.ca
- Team of 4, designed a mechatronics system that stops the uncontrolled spinning of hoisted payloads
- Personally contributed to the wireless data collection and display, firmware and software development
- Won over $14k in funding through various grants, pitch competitions, and awards

Baseball Pitching Robot Localization 2024 | coopercole.ca
- Designed a system using stereovision to localize the position and orientation of a robot relative to home plate
- Allows the robot to aim the pitches into the strike-zone with an increased accuracy

Spikeball Net Model 2023 | coopercole.ca
- Team of 3, created and validated a physics simulation model of Spikeball ball-net interaction
- Validated the model by comparing it to experimental data measured using OpenCV ball tracking software

Education

University of Waterloo – Candidate for BASc in Mechatronics Engineering 2024 May 2024
Universidad Carlos III de Madrid – Mechatronics Engineering, Study Abroad Fall 2022