MAXWELL PALEN ANDERSON

303-562-7266 ⋄ maxwell.anderson@colorado.edu

EDUCATION

University of Colorado, Boulder

Master of Science in Mechanical Engineering — Robotics and Controls Focus — Expected 05/2023

Bachelor of Science in Mechanical Engineering — Engineering Honors Program — 05/2022 — GPA: 3.520

WORK EXPERIENCE

Student Researcher — 06/2021 - 08/2022

Northwestern Research Associates, Boulder

• Software development, data collection, and data analysis on atmospheric data. Optimizing old code, and creating code packages which standardize file formats, naming conventions, and data structures to be used by the research team. Calculating and analyzing second order statistics to evaluate micro-meteorological theories.

Undergraduate Researcher — 03/2019 - 05/2021

Advanced Medical Technologies Laboratory

• Conducted research in the biomedical and soft robotics fields. Designed novel experimental platforms that are being used for manufacturing, data collection, and sensor calibration. Created a novel design for a electro-mechanical tether, that will inform future work. Earned a co-authorship on the paper: *Embedded Magnetic Sensing for Feedback Control of Soft HASEL Actuators*, to appear in IEEE Transactions on Robotics in 2022.

PROJECTS

Soft Robot for Minimally Invasive Surgery — 2021-2022

• *Industry Client — Medtronic*: Team communication manager in charge of working with our three clients.
• *Project Management*: Technical Lead on project, lead design discussions, finalized decisions, coordinated team.
• *Research and Development*: Developed a soft robot that can perform complex actuation informed by existing research. Learned about design iteration, optimization, and qualitative/quantitative testing.

Linear Displacement Correlation Platform — 2021

• *Mechanical Design*: Using Solidworks, designed a mechanism that displaced a magnet at 0.1 mm intervals.
• *Time Management*: Managed my time and completed design and fabrication on limited three week schedule.
• *Publication*: Work earned a co-authorship on a paper awaiting publication in the journal IEEE T-RO.

Calibration of Magnetometer and Magnetic Sensing Skin for Soft Actuators — 2020

• *Mechanical Design*: Designed a calibration platform for 3-axis magnetometers with magnetically inert materials.
• *Technical Writing*: Prepared and submitted research proposal to the Biological Sciences Initiative.
• *Calibration Validation*: Developed validation testing procedures to assess accuracy of calibration method.

Robotic Capsule Endoscope (RCE) Tether — 2019

• *Iterative Design*: Developed a novel tether for the robot that was thin, flexible, and concentric irrigation tube.
• *CAD & Manufacturing*: Generated CAD models and engineering drawings to manufacture unique hardware.
• *Collaboration*: Integrated individual and collaborative work in an ongoing research project.

AWARDS

• BSI Scholars Continuation Funding, $2500. Funding for work on Mag-skin project. — 2020 - 2021
• Biological Sciences Initiative Scholars Award, $2500. Funding for work on RCE tether project. — 2019

TECHNICAL STRENGTHS

Rapid Prototyping	3D Printing: Stereolithography & Filament Deposition, Laser Cutting
CAD & Technical Drawings	Certified SolidWorks Associate, GD&T, Ordinate Dimensioning
Manufacturing	Lathes, Mills, Band & Miter Saws, Drill Presses, CNC Routing
Software & Tools	Arduino, Corel Draw, Excel, Latex, Sublime Text, VS Code
Programming Languages	MatLab, C++