MAXWELL PALEN ANDERSON

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EDUCATION

University of Colorado, Boulder (CU) Expected May 2022
Bachelor of Science in Mechanical Engineering — Engineering Honors Program GPA: 3.520

WORK EXPERIENCE

Student Researcher June 2021 - Present
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 March 2019 - May 2021
Advanced Medical Technologies Laboratory, University of Colorado, Boulder

• Conducting independent 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 be built upon and inform future work.

PROJECTS

Soft Robot for Minimally Invasive Surgery 2021-2022

• *Medtronic — Industry Client*: Team communication manager in charge of working closely with our three clients Jing Zhao, Robert Wham and John Komp. Ensured that project requirements they set out were being met.
• *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 under review for 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

University Research Funding
• BSI Scholars Continuation Funding, $2500. Funding for work on Mag-skin project. 2020 - 2021
• Discovery Learning Apprenticeship, a CU Engineering research fellowship program. 2019 - 2020
• Biological Sciences Initiative Scholars Award, $2500. Funding for work on RCE tether project. Summer 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++