ROGER HO

Ann Arbor, MI 48105 | rogerho@umich.edu | +1 (734) 968-2525 | rogerksho.github.io

EDUCATION

UNIVERSITY OF MICHIGAN **Aug 2019 - May 2023**
BSE Mechanical Engineering; Minor in Computer Science **Ann Arbor, MI**
Overall GPA: 3.92/4.00, summa cum laude | **Major GPA:** 4.00/4.00

ACADEMIC EXPERIENCE

PRECISION SYSTEMS DESIGN LABORATORY **May 2022 - May 2023**
Research Assistant | University of Michigan **Ann Arbor, MI**

- Devised and conducted experiments to characterize a novel flexure mechanism to verify the performance of a theoretical structural augmentation, resulting in a publication in preparation.
- Collaborated with a team to design a flexure-based XY nanopositioning system with a focus on manufacturability, and carried the project through design, manufacturing, assembly, and open-loop testing, resulting in a patent and publication in preparation.
- Carried out thorough static and dynamic finite element analysis (FEA) to optimize flexure parameters for actuation stiffnesses, bearing stiffnesses, and resonant frequencies.
- Developed a framework with a graduate student to simulate and subsequently select the appropriate precision actuators and sensors based on flexure parameters and motion profile.

U-M BATTERY LAB **Sep 2021 - Jan 2022**
Research Assistant | University of Michigan **Ann Arbor, MI**

- Investigated the effect of fast formation on battery lifetime and electrochemistry by interpreting data from tests such as hybrid pulse power characterization (HPPC) and constant discharge.
- Analyzed diagnostic data from end-of-life lithium-ion pouch cells in Python to elucidate the effects of discharge temperature and presented the results in a digestible format.

MICROFLUIDICS AND SOFT MATTER GROUP **May 2018 - Sep 2018**
Research Assistant | The University of Hong Kong **Hong Kong**

- Conducted individual investigation on the structural strength of Aqueous Two Phase System (ATPS) capsules created with microfluidics for the application of timed medication release, triggered by capsule rupture from high voltage electric fields and Couette flow.
- Collaborated with graduate students on investigating the application of microfluidics in ATPS.

NON-ACADEMIC EXPERIENCE

STEALTH-MODE ROBOTICS STARTUP **Jul 2023 - Present**
Design Engineer **Ann Arbor, MI**

- Led the development of a robust mechatronic system for a robotic device, which implemented closed loop control to allow precise tracking of user input.

- Led the development of miniature manipulators for a robotic device, entailing responsibilities such as overall project management, mechanism analysis, geometric dimensioning and tolerancing, manufacturing logistics, and design for manufacturing.

PHOENIX CAPITAL (INTERNATIONAL) LIMITED **Jun 2021 - Aug 2021**
Quantitative Analyst Intern **Hong Kong**

- Implemented experimental trading algorithms based on survival analysis statistical modeling.
- Devised profitable trading algorithms and technical indicators based on momentum trading.
- Created multiple internal tools and scripts in Excel VBA to optimize office operations.

ONEDEGREE **Jun 2020 - Aug 2020**
Software Developer Intern **Hong Kong**

- Configured business intelligence tools (Apache Superset) to consolidate client data.
- Developed an internal web application tool to streamline workflow of program managers.

PUBLICATIONS

1. Radgolchin M., Radkte D., Rath S., **Ho R.**, Awtar, S., 2024, “Experimental Characterization of a Sandwich Double Parallelogram Flexure Mechanism", planned for Nov. 2024 submission to *Precision Engineering*
2. Radgolchin M., Rath S., **Ho R.**, Ridings C., Awtar, S., 2025, “A New XY Flexure Mechanism Architecture with In-Plane and Out-of-Plane Interconnects: Part 1 - Design" planned for Jan. 2025 submission to *Precision Engineering*

INVENTIONS

1. Shorya Awtar, Siddharth Rath, **Roger Ho**. 2024. Method of Manufacture and Assembly of XY Flexure Mechanism Assembly. U.S. Patent Application 18/605411, filed March 14, 2024. Patent pending.

HONORS

JAMES B. ANGELL SCHOLAR **Mar 2021 - Apr 2023**
Awarded to students who achieve all A’s (A+, A, A-) for two or more consecutive terms.

UNIVERSITY HONORS/DEAN’S LIST **Dec 2019 - Dec 2022**
Awarded to students who earn a GPA of 3.5 or above during a term.

GRADING & TEACHING

GRADER **Aug 2021 - May 2022**
Graded assignments and quizzes for engineering courses such as "Introduction to Dynamics and Vibrations" and "Mechanical Behavior of Materials".

IB MATHEMATICS TUTOR **May 2019 - Aug 2019**

Tutored IB students in mathematics SL on topics such as calculus, trigonometry and statistics.

SKILLS

- **Hardware:** Soldering (SMT/SMD), Circuit Design, PCB Design/Layout, Machining (Lathe, Manual Mill), FDM/SLA 3D Printing
- **Software:** SolidWorks (CSWA Certified), ANSYS (Mechanical, Discovery), MATLAB (Simulink, Simscape), Quartus II (ModelSim), KiCAD EDA, MSC Adams, LabView, LTSpice
- **Programming:** Python (NumPy, pandas, matplotlib), C++, C#, C, VHDL, Arduino, Swift, Java, JavaScript, AWS (EC2, S3), SQL