

Mitchell Melander

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EDUCATION

Case Western Reserve University, Case School of Engineering

Cleveland, Ohio

M.S. Biomedical Engineering; 2023

GPA: 3.9

B.S.E. Biomedical Engineering; 2022

GPA: 3.7

WORK EXPERIENCE

Advanced Manufacturing and Mechanical Reliability Center, Cleveland, OH

January 2022 – Present

Student Researcher

- Design and create prototype medical devices intended to be used for peripheral nerve stimulation and in neuroprostheses.
- Create testable hypotheses that are subsequently verified through experimental testing with various pieces of laboratory equipment.
- Follow ASTM standards and adapt them to novel experiments and materials when necessary.

Center for the Evaluation of Implant Performance, Cleveland, OH

August 2019 – Present

Student Researcher

- Conduct the mechanical characterization of additively manufactured PEEK specimens of various designs, build orientations, and print settings.
- Coordinate the setup and operation of a 3D printer along with the creation of a standard operating procedure for the machine.
- Examined and sterilized several different types of implants removed from orthopedic surgery patients. This included the removal of infected tissue from the metal, polymer, and ceramic components of the implants prior to sterilization. Failure analysis was then conducted on these explants.

NovelMed Therapeutics, Cleveland, OH

May 2021 – April 2022

Biomedical Research Intern

- Recorded and presented data from ELISA microplates prepared in a Good Laboratory Practice (GLP) lab for the analysis of Phase I and Phase II clinical trial experiments and relevant animal studies.
- Created and filed FDA clinical trial documents in a consistent and efficient manner.
- Researched new clinical indications for the company's expanding drug portfolio.
- Updated the design and capabilities of the company's website for press releases.
- Maintained laboratory inventory, including general supplies as well as chemical and biological reagents.

RELEVANT SKILLS

- Prototype Documentation & Development
- Additive Manufacturing
- SOLIDWORKS, Autodesk Fusion360
- Mechanical Characterization of Polymers
- Optical and Electron Microscopy
- MATLAB

LEADERSHIP & AWARDS

- Swagelok Center for Surface Analysis of Materials Student Fellowship Program, Spring 2023
- Wen H. Ko Summer Intern Scholar: Advanced Platform Technology Center, Summer 2022
- Certificate of Excellence in Science: NovelMed Therapeutics, 2022
- Jose Ricardo Alcala Memorial Award: CWRU Department of Biomedical Engineering, 2022
- Vice President, Alpha Eta Mu Beta Biomedical Engineering Honors Society, Fall 2021 – Spring 2022

ABSTRACTS/POSTER PRESENTATIONS

- “Fatigue Crack Propagation Of Extruded And Additively Manufactured Peek Using A Compliance Approach” M. Melander, C. Mohme; H. Naganaboyina; V. Bokam; P. Sikder; J. Bensusan; C. Rimnac; Biomaterials - Orthopaedic Implant Materials; Orthopaedic Research Society, Dallas, Texas; February 2023.
- “Mechanical Evaluation of Polymeric Substrates for Use in Flexible Electronic Applications” M. Melander, J. Gbur; Next Generation Biomaterials; MS&T22: Materials Science & Technology, Pittsburgh, Pennsylvania; October 2022.
- “Time study of particle-free silver ink for use in flexible, medical electronics” M. Melander; APT Summer Internship Program Research Symposium; Case Western Reserve University, Cleveland, Ohio; August 2022.
- “Wearable Syncope Monitor” M. Melander, K. Hart, M. Paserba, B. Wu; Intersections: SOURCE Symposium and Poster Session; Case Western Reserve University, Cleveland, Ohio; December 2021, May 2022.