LILLY SPEIER

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Hartland, Michigan

SKILLS

Technical writing

Statistical analysis

Communication

Problem Solving

Teamwork

Motivation

HONORS

2019: Inducted into Phi Eta Sigma National Honor Society

2020: Inducted into National Society of Leadership and Success

2023: Awarded Lee Swanger Fellowship from CWRU School of Engineering

PROFILE

First year biomedical engineering PhD student in the Hubert Lab at Case Western Reserve University interested in glioblastoma invasion, angiogenesis, microfluidics, and biomimicry.

EDUCATION

Trine University— Angola, Indiana — BS in Biomedical Engineering

Graduated: May 2023

BME Lab Techniques: Basics of cell culture, aseptic technique, and common biomedical research assays

- Bright field and fluorescence microscopy, dilution calculations, static and dynamic cell adhesion assays, blood cell separation assay, electrophoresis, ELISA

BME Research Techniques: Cell viability assay, cell fixation, laser cutting, flow cytometry, and cryopreservation

- Partner project: Characterizing the cellular uptake of iron oxide nanoparticles in human leukemia cells, healthy B-cells, and hypoxia-induced B-cells

BME Senior Design I & II: Product design, design for manufacturing, prototyping, economics, FDA regulations

- Group project: Created a medical simulation device for cardiac catheterization procedures. Features a patient-specific, beating heart model and physiologically accurate (Womersley) fluid flow, with adjustable heart rate programmed using Arduino

EXPERIENCE

National Science Foundation REU May — July 2022

Nanotechnology & Biomedicine, University of Georgia

- **Assessing CAR T-cell Therapy Efficacy Using a Glioblastoma-on-chip Microfluidic Platform:** Researched in Dr. Lohitash Karumbaiah's lab. Studied impact of culture environment and CAR T-cells on GSC stemness, proliferation, cell cycle, and immunophenotype. Presented results at 2022 Biomedical Engineering Society annual conference in San Antonio, Texas

Undergraduate Research Assistant August 2022 — May 2023

Trine University & Indiana Space Grant Consortium (INSGC)

- **Assessing Impacts of Low Microenvironmental Oxygen on Organotypic Lymphatic Vessel Models in the Context of Astronaut Health:** Research supervised by Dr. Max Gong. Developed lymphatic vessel models using type I collagen and assessed the impact of space environmental factors on lymphatic endothelial cell viability, cell cycle, cytokine secretion, and partial pressure of oxygen. Supported by INSGC, a branch of NASA