Siddhi M. Bhirud

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EDUCATION

2025 – present **University of Colorado Boulder, Department of ChBE, Boulder, CO**
PhD., Chemical Engineering

2021 – 2024 **University of Michigan, College of Engineering, Ann Arbor, MI**
B.S., Biomedical Engineering

HONORS AND AWARDS

2021-2024 Dean's List, University of Michigan

RESEARCH EXPERIENCE

May 2024 – May 2025 **Dr. Mark A. Burns, Ph.D. – Burns Lab**
Department of Chemical Engineering, University of Michigan, Ann Arbor, MI
Undergraduate Research Assistant

- Developed and optimized a quantum dot-linked immunosorbent assay (QLISA) for the detection of glial fibrillary acidic protein (GFAP), Neurofilament light protein (NfL), and ubiquitin C-terminal hydrolase-L1 (UCH-L1) biomarkers, aimed at enabling point-of-care diagnosis of traumatic brain injury (TBI).

April 2023 – May 2025 **Dr. Brendon M. Baker, Ph.D. – Baker Lab**
Department of Biomedical Engineering, University of Michigan, Ann Arbor, MI
Undergraduate Research Assistant

- Implemented scalable bio-fabrication strategies for the modular inclusion of capillaries and anisotropic myotubes in engineered cardiac tissues for repairing damaged myocardium.
- Optimized differentiation protocols for iPSC-derived cardiac fibroblasts to support engineered tissue constructs.

Nov 2021 – April 2023 **Dr. Bo Yang, M.D., Ph.D. – Department of Cardiac Surgery**
Frankel Cardiovascular Center, University of Michigan, Ann Arbor, MI
Undergraduate Research Assistant

- Conducted statistical post-surgical clinical studies to evaluate outcomes and identify factors influencing patient recovery, aiming to enhance treatment protocols and improve patient outcomes.

PRESENTATIONS

July 2024 Ann Arbor, MI — **Bhirud SM**, Veldink A, Habibi S, Burns MA, "Lowering the limit of detection for traumatic brain injury biomarkers using digital data analysis techniques for non-invasive point-of-care microfluidic devices," Summer Undergraduate Research Experience Symposium, poster.

June 2024 Seattle, WA — Jewett ME, Bluem AS, Xi S, **Bhirud SM**, DePalma SJ, Baker BM. "Microfabricated anisotropic cardiac myobundles for the modular assembly of cardiac tissue grafts," TERMIS 2024 World Congress, podium.

June 2024 Seattle, WA — Jewett ME, Midekssa FS, Stanley ME, Hu MM, Xia J, **Bhirud SM**, Xi S, Baker BM. "Rapid assembly of aligned microvascular networks for cardiac tissue grafts," TERMIS 2024 World Congress, podium.

May 2024 Ann Arbor, MI — Jewett ME, Xi S, **Bhirud SM**, Bluem AS, DePalma SJ, Baker BM. "Microfabricated anisotropic myobundles for the scaled production of cardiac tissue grafts," Biomedical Engineering Symposium, poster.

May 2023 Los Angeles, CA	Yang B, Makkinejad A, Monaghan K, **Bhirud SM**, Amin K, Titsworth M, Ghita C, Ahmad RA, Wu X, Fukuhara S, Kim K, Patel H, Romano M, Pagani F, Tang P, Haft J, Ailawadi G, Deeb GM. "Aortic Annular Enlargement Improved Mid-term Survival in Patients with a Small Aortic Annulus – A Propensity Score Matched Study," AATS, abstract presentation.
April 2022 Ann Arbor, MI	**Bhirud SM**, Yang B, Titsworth M, Graham N, "Aortic Progression After Hemiarch and Zones 1-3 Arch Replacement in Acute Type A Aortic Dissection," Undergraduate Research Opportunity Program Symposium, presentation.