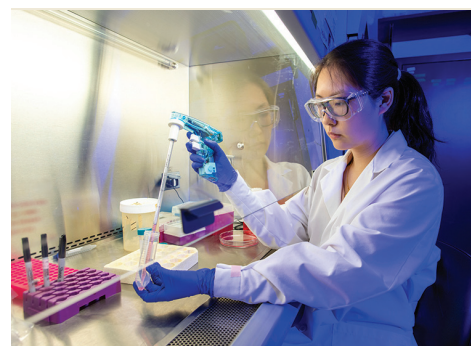
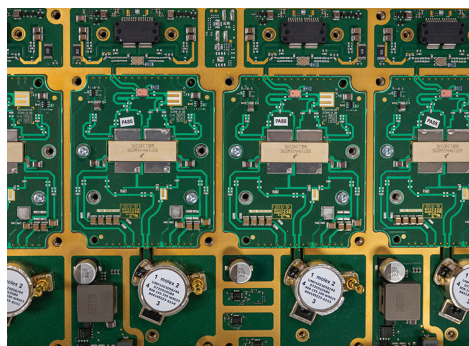
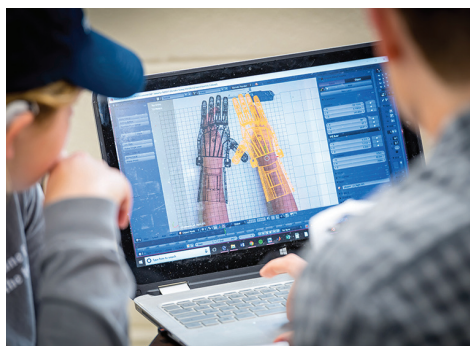


THE BIOENGINEERING & LIFE SCIENCES INITIATIVE



“The Bioengineering & Life Sciences Initiative understands the transformative potential of large-scale AI models in accelerating scientific discovery.”

Paul Bohn, the Arthur J. Schmitt Professor of Chemical and Biomolecular Engineering and Inaugural Director of the Notre Dame Bioengineering & Life Sciences Initiative

Breakthroughs in human health happen when science and engineering come together—and when innovative uses of AI accelerate discovery, detection, prevention, and treatment of disease. With a focus on multidisciplinary, the Bioengineering & Life Sciences Initiative is supporting research projects that range from producing cancer therapies in low-earth orbit to advancing biothreat assessment using machine learning-driven analytics to creating AI-powered cardiovascular models that integrate clinical, sensor, and demographic data. In alignment with the University’s Catholic mission, the Initiative is committed to developing accessible health and wellness solutions that enable human flourishing.

Learn more at go.nd.edu/BELS and email director Paul Bohn (pbohn@nd.edu) with questions or proposals for collaborative projects.



Research



Training



Partnerships



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BIOENGINEERING & LIFE SCIENCES INITIATIVE

Our work

The Notre Dame Bioengineering & Life Sciences Initiative directs its work toward three areas:

- Research:* The Initiative combines cutting-edge advances in life sciences with pioneering achievements in engineering to address complex, multifaceted challenges. Through strategic investments in faculty and research infrastructure, the Initiative brings together specialists from diverse fields (e.g., engineers and cell biologists, AI specialists, and chemists) to build a powerful environment for productive research.
- Training:* The Initiative is training new generations of postdoctoral and graduate fellows to move successfully between engineering and the life sciences and to flourish in a multidisciplinary research environment. Recruiting a cadre of top-tier postdoctoral scholars who have the freedom of working with more than one principal investigator amplifies the collaborative nature of the Initiative.
- Partnerships:* Cultivating external relationships with academic institutions, governments, foundations, corporate partners, and clinical providers around the world expands Notre Dame's research capabilities and impact. These strategic partnerships also foster bilateral scholarly exchanges with the world's brightest minds and help Initiative researchers better engage with geographic areas, such as the Global South, that have not traditionally been a part of research enterprises.
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Our approach

The Bioengineering & Life Sciences Initiative's research, training, and partnership focus on three mission-driven research themes:

Health Foundations: Seeking to understand disease at the most basic molecular and cellular levels, including multiscale dynamics and biological function, omics-to-phenotype, and bridging data to treatments.

Health Technologies: Applying engineering principles to biological systems for a wide range of applications, including developing vaccines, designing new therapeutics, and preparing for new diseases before they become major threats.

Health Equities: Studying ways to make health advances readily accessible to the majority of people who, because of geographic or socioeconomic limitations, remain outside of modern health systems.

Our leadership



Paul Bohn

Inaugural Director, Bioengineering & Life Sciences Initiative; Arthur J. Schmitt Professor of Chemical and Biomolecular Engineering and Professor of Chemistry and Biochemistry; Director, Center for Bioanalytic Metrology; Founding Member, Indiana Consortium for Analytical Science and Engineering



Arnie Phifer

Managing Director, Bioengineering & Life Sciences Initiative, and Operations Director, Center for Bioanalytic Metrology

Learn more at
go.nd.edu/bels