

Isaac Fritz

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Education:

Purdue University, School of Engineering – Ph.D. Mechanical Engineering

- Energy and Transport Sciences Laboratory
- Advisor: Partha Mukherjee

Purdue University, School of Engineering – B.S. Mechanical Engineering

- GPA: 3.66
- Minor: Mathematics
- Honors: Dean's List

Technical Skills:

Languages: C++, Python, MATLAB, Maple, Arduino IDE, Arduino PLC IDE

Computer-Aided Design: SolidWorks, Siemens NX, AutoCAD, Fusion 360, 3DS Max

Other: Microsoft Office, Adobe Platforms

Professional Experience:

Beckman Coulter Life Sciences, Indianapolis, IN

06/2024 – 03/2025

R&D Mechanical Engineering Intern

- Conducted technical research regarding patent information and recent biotechnology development
- Development of prototype centrifugation systems utilizing electromechanical and HVAC principles
- Performed reliability and quality assurance testing on liquid handling automation systems
- Creation of microcontroller-based control systems for data collection and automation in prototype testing using
- Utilization of PLCs (Programable Logic Controllers) and Human Machine Interfaces for autonomous systems
- Drafted technical reports based on test results and newly implemented European Union product restrictions

Purdue University, Layered Materials and Structures Laboratory, Indianapolis, IN

07/2023 – 12/2024

Undergraduate Researcher

- Synthesis of two-dimensional nanomaterials to be applied for weight reduction and insulation
- Utilization of wet spinning optimization techniques to develop MXene Fibers
- Contributed to materials engineering research papers related to material science and engineering
- Completed a poster presentation of experimental finding at a research exposition
- Demonstration of general laboratory safety and practices
- Utilization of a fume hood and glove box for specific reactions and experiments

Purdue School of Engineering and Technology, Indianapolis, IN

09/2021 - 02/2023

Student Success Ambassador

- Provided assistance with advising, event planning, and departmental communication
- Organize networking and academic events within the department

Relevant Experience and Projects:

Enhanced Thermoelectric Cooling for High Performance Centrifugation, Beckman Coulter Life Sciences

- Analysis of cooling and centrifugation systems
- Employed temperature data collection techniques
- Developed an efficient cooling system design using the Peltier Effect

Autonomous Materials Discovery Laboratory, Purdue University

Fall 2024

- Development of a virtual 3-Dimensional Autonomous laboratory environment
- Utilization of automation concepts and optimization techniques
- Design of a functional Graphical User Interface (GUI) for user-system interaction

Fundamental Investigation of Magnesium Infiltrated $\text{Ti}_3\text{C}_2\text{T}_x$ Fibers, Purdue University

Spring 2024

- Development of optimized wet spinning parameters
- Performed design of experiments (DOE)
- Demonstrated that Magnesium and MXene fibers could be sintered at a relatively low temperature

Cardiac Ablation Research Project, Abbott Laboratories

Fall 2023

- Performed research in cardiac systems and electronic sensor interference

- Worked in the initial design and development of advanced ablation and cardiac mapping catheters
- Proposed a solution for optimal pre-ablation cardiac mapping

High Performance Motorcycle Design and Fabrication

01/2018 – 12/2023

- Design using SolidWorks and Siemens NX CAD software with FEA applications
- Analysis of motorcycle dynamics and combustion to increase performance and handling
- Fabrication of suspension and subframe systems

Honors, Awards, and Certifications:

FE Exam Certification (E.I.T. certified in Indiana)

Tau Beta Pi Member

Lean Six Sigma White Belt