Abhaya Sundar

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Lathrop, CA 95330 (508) 986-8863

Education

Purdue University, Engineering College | West Lafayette, IN Class of 2028

Major: Mechanical Engineering
Minor: Nuclear Engineering
GPA: 3.5

Relevant Skills & Tools

- Electrochemistry & Energy Storage: Lithium-ion battery principles, thermal degradation analysis
- Computational Modeling: Python, MATLAB, CFD, CAD (Siemens NX)
- Data Analytics: Statistical modeling, performance optimization, experimental data interpretation
- Lab Techniques: Material testing, sensor integration, electrochemical characterization

Research Experience

Primary Researcher - MGH Brigham | Harvard Medical School June 2021 - Present

Global Epidemiology of X-linked Adrenoleukodystrophy

- Read through 485 articles and analyzed the 23 that met the inclusion criteria
- First authorship for literature review in the ScienceDirect Journal
- Continued research for MGH's Center for Rare Neurological Diseases with Dr. Florian Eichler

Independent Study Sep 2023 - Aug 2024

Piezoelectric Transducers in Large-Scale Infrastructure

- Investigated energy conversion via piezoelectric materials, analyzing stress-strain relationships for renewable energy generation
- Designed and prototyped a functional bridge model with embedded piezoelectric transducers, optimizing energy efficiency under dynamic loads
- Skills Applied: Material characterization, data-driven performance analysis, structural simulations

Technical & Engineering Experience

Engineering Intern - Northern California Power Agency | Lodi, CA Jun 2025 - Aug 2025

Combined Cycle Turbines

- Analyzed thermal management in GE Frame 5 turbines, assessing heat transfer and combustion efficiency
- Authored a technical report on bleed heat utilization to prevent icing, demonstrating problem-solving in energy systems

Design Lead - EPICS Habitat for Humanity | Purdue University Aug 2024 - Present

Pole Barn Ventilation

- Developed a CFD-optimized ventilation system using Arduino-based control, showcasing reactive transport modeling and system automation

Publications & Presentations

- Sundar, Abhaya. "P319: Epidemiology of X-Linked Adrenoleukodystrophy beyond the Western World: A Systematic Review of the Literature." *ScienceDirect*, Elsevier, 13 Mar. 2023, www.sciencedirect.com/science/article/pii/S2949774423003473.
- Presented at American College of Medical Genetics (ACMG) 2023
- Authored a paper on piezoelectricity and its use in architecture, specifically bridges, in local journal

Work Experience

Undergraduate Teaching Assistant - Physics Mechanics Jan 2025 - Present

- Mentor 200+ students by answering questions and explaining complex physics concepts