ADITYA DAVE

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EDUCATION

University of Illinois Urbana-Champaign *August 2023 - Present*
Bachelor of Science in Neural Engineering, Stamps Scholar, Chancellor's Scholar 3.89/4.0

OBJECTIVE

Aspiring medical professional and engineering student with a diverse innovation & research portfolio who is a curious learner passionate about improving the quality of life through interdisciplinary solutions.

CERTIFICATIONS AND TECHNICAL STRENGTHS

Certified Nursing Assistant (CNA), Intuit Quickbooks Certified in Entrepreneurship. R, Python (Pandas, Matplotlib), Matlab, Arduino, Swift, CAD (Fusion360), Soldering, Circuit Design, Data Analysis

RESEARCH EXPERIENCE

Northwestern University Feinberg School of Medicine Chicago, IL
Clinical Research Assistant - Department of Neurosurgery *August 2025 - Present*

Advised By: Najib El Tecle, M.D.

Analyzing post-operative spine surgery recovery using wearable-derived metrics from the NIH All of Us Research Program by modeling longitudinal Fitbit step trajectories with nonlinear mixed-effects methods. Examined obesity as a modifier of functional recovery, and currently investigating additional clinical risk factors to identify predictors of delayed post-operative improvement.

Analytical Chemistry Neuroscience Laboratory Champaign, IL
Research Assistant *January 2024 - September 2025*

Advised By: Jonathan V. Sweedler, Ph.D.

Utilized LC-MS techniques to measure endogenous peptides in neuronal tissue to understand opioid peptide regulation in sickle cell disease. Explored differences between normal and exercised extracellular vesicles with NASA to provide therapies for preserving health during space travel. Conducted computational analysis of high-dimensional, LC-MS proteomics data, applied statistical clustering, and implemented predictive machine learning techniques to identify key biomarker differences.

National Institute for Theory and Mathematics in Biology Evanston, IL
Research Fellow *June 2024 - August 2024*

Advised By: Dr. William Kath, Ph.D., Marco Gallio, Ph.D

Identified specific neuron types in single-cell fly atlases by determining the effectiveness of similarity measures and comparison algorithms. Created a translational tool that bridged a data gap by correlating datasets. Worked in the Department of Neurobiology and Applied Mathematics and Engineering, funded through the National Science Foundation at Northwestern University.

Argonne National Laboratory Lemont, IL
Exemplary Student Research Program Team Lead *August 2021 - May 2023*

Advised By: Olga Antipova, Ph.D., Thomas Irving, Ph.D

Investigated cobalt uptake in various plants using X-ray spectroscopy and researched the temperature dependence of porcine sarcomere structures using small-angle X-ray diffraction.

PROFESSIONAL EXPERIENCE

Cor Chicago, IL
co-Founder, COO *January 2025 - Present*

Cor seeks to revolutionize the treatment of coronary artery disease through dynamic machine learning software that can be directly integrated into current wearable ECG technology, empowering individuals with an early pre-screening tool that prompts timely medical follow-up to ultimately prevent heart attacks. Recently honored as an international Moonshot Idea Award Finalist in November 2025.

Breast Cancer Detection Venture Champaign, IL
co-Founder, Biomedical Engineer *September 2023 - July 2024*

Spearheaded the biomedical design of a novel, point-of-care test to increase early breast cancer detection for women under 50 by promoting proactive screening. Presented the venture's proof-of-concept at the 2024 Cozad New Venture Challenge, where the team was awarded $750 in funding and won the AWARE and Commitment to Entrepreneurship prizes.

DIRE Detect Champaign, IL
Biomedical Engineer *December 2023 - April 2024*

Developed a novel diagnostic tool using a convolutional neural network (CNN) to identify ocular diseases, creating an alternate screening method to combat preventable vision loss in low/middle-income countries. This project, aimed at increasing healthcare accessibility, was selected for presentation at the UIUC Engineering Open House for the Biomedical Engineering Society in April 2024.

OSF Emergency Department Urbana, IL
Emergency Department Technician *September 2025 - Present*

Providing direct patient care in the Emergency Department by obtaining vitals, performing EKGs, assisting with procedures such as splinting and wound care, supporting triage flow, and coordinating patient transport and preparation in high-acuity settings.

OSF Critical Care Unit Urbana, IL
Patient Care Technician *January 2025 - September 2025*

Providing direct patient care in the cardiac critical care unit by monitoring vital signs, assisting with activities of daily living, and ensuring patient comfort and safety. Trained in performing EKGs and EEGs as one of two technicians in the hospital.

Vision Swim Champaign, IL
Engineer @ MedLaunch *September 2025 - Present*

Building a wearable guidance system for a community partner with low vision due to glaucoma. Currently engineering an assistive device to enable safe, independent swimming by using computer vision to perform real-time lane line-tracking. This work involves designing a system that provides directional haptic feedback to alert the user when veering off course, iterative hardware prototyping to solve device stability and user comfort, and designing the full electronics schematic as a waterproof solution.

SeizureSense Champaign, IL
Engineer @ MedLaunch *September 2024 - April 2025*

Architected an integrated, multi-modal alarm system for a family with deaf parents to monitor their daughter's nighttime seizures. Constructed a solution that interfaced a commercial seizure detection kit with a custom-built alert system, translating seizure alerts into a remote vibrating bed-shaker and bright visual light indicators. This system, built using CAD modeling and Arduino microcontrollers, provided a critical, non-auditory alert, improving the family's quality of life and in-home care.

J-Walk Champaign, IL
Engineer @ MedLaunch *September 2023 - April 2024*

Partnered with a community member with cerebral palsy to re-engineer a failing gait-trainer device. Led the mechanical redesign of the walker's handles, utilizing Fusion360 for CAD modeling and hands-on fabrication techniques to create a robust, ergonomic solution. Delivered a final product that replaced uncomfortable, non-functional components with durable, lightweight aluminum and NPVC foam, enabling our partner to maintain daily mobility and independence.

OUTPUT AND PRESENTATIONS

Publications:

Dave A, Dave A, Moussa ID. The Evolving Role of Artificial Intelligence and Machine Learning in the Wearable Electrocardiogram: A Primer on Wearable-Enabled Prediction of Cardiac Dysfunction. Bioengineering. 2026; 13(2):167. https://doi.org/10.3390/bioengineering13020167

Poster Presentations:

A. Dave & N. Tecle. *Impact of Obesity on Post-Operative Functional Recovery After Spine Surgery: A Wearable-Based Analysis.* American Academy of Neurological Surgeons, San Antonio, May 2026.

R. Sullivan, **A. Dave**, et. al. *VisionSwim: Direction Assist For Visually Impaired Swimmers.* University of Illinois Human-Centered Engineering Symposium March 2026

R. Sullivan, **A. Dave**, et. al. *SeizureSense.* MedLaunch Poster Symposium April 2025

A. Dave, Y. Tan, J. Sweedler. *Computational Analysis of Mass Spectrometry-Based Proteomics Data from Exercised Induced Extracellular Vesicles.* Eastern Central Illinois American Chemical Society Conference October 2024.

A. Dave. *Neuron Identification across Gene Expression Datasets using Correlation Analysis.* National Institute for Theory and Mathematics in Biology Summer Symposium August 2024.

A. Dave. *Diabetic Retinopathy Identification with Convolutional Neural Networks and Machine Learning.* University of Illinois Grainger College of Engineering Open House April 2024.

K. Skurnak, N. Maranowski, **A. Dave**, et. al. *J-Walk.* MedLaunch Poster Symposium April 2024

A. Dave, S. Leung, S. Mehta, et. al. *Utilizing X-Ray Fluorescence Microscopy Mapping to Visualize Cobalt's Distribution in Vegetable Plants.* Argonne National Laboratory Exemplary Student Research Program Symposium 2023.

J. Barker, **A. Dave**, A. Garde, et. al. *The Effects of Calcium Concentrations on Short and Long Porcine Sarcomeres.* Argonne National Laboratory Exemplary Student Research Program Symposium 2022.

Pitches:

M. Agrawal, T. Agrawal, **A. Dave**, A. Mercado. *An At-home, Rapid, Non-invasive Screening Modality for Breast Cancer Detection.* University of Illinois Cozad New Venture Challenge 2024. **Awarded the AWARE and Commitment to Entrepreneurship prizes.**

LEADERSHIP AND VOLUNTEER WORK

GlobalSurgBox Palo Alto, Ca
Video Production Director *March 2025 - Present*

GlobalSurgBox is a low-cost (25-dollar-value), portable surgical simulator kit that is donated to partner Low- and Middle-Income Countries (LMICs) to enable trainees to practice a variety of skills regardless

of their location, academic affiliation, or resource stratum. I directed the filming, editing, and post-production workflows to create a course of accessible, high-quality visual content for surgical tutorials, including knot-tying, suturing, and advanced procedures.

MedLaunch Champaign, IL
Professional Development Director *September 2023 - Present*

MedLaunch is a student-led organization focused on working with individuals with disabilities in the Champaign-Urbana area to deliver human-centered devices that improve quality of life. As the professional development director, I manage coordinating technical workshops, handle outreach to industry professionals, and organize professional events like career panels for our general members.

Film Score Orchestra UIUC Champaign, IL
Founder, President, Cellist *May 2024 - Present*

Founded the Film Score Orchestra as a registered student organization at the University of Illinois Urbana-Champaign after noticing a lack of non-classical focused ensembles. This full orchestra ensemble, open to anyone, performs music featured in famous films for the Champaign-Urbana community.

Center for Academic Resources in Engineering (CARE) Urbana, IL
Tutor, Exam Review Lead *Jan 2026 - Present*

CARE is a peer-led learning community at the Grainger College of Engineering that provides a collaborative environment for engineering students to excel through mentorship and academic resources. I help facilitate this through drop-in tutoring hours and exam review sessions for a range of courses.

Illini Medical Screening Society Champaign, IL
Screening Volunteer *August 2025 - Present*

The Illini Medical Screening Society provides free health screenings to the low-income and uninsured citizens of Champaign County. During screenings, we take basic vitals, conduct a lipid panel, and check glucose levels, ultimately referring at-risk patients to local free health clinics. I also assist with community outreach initiatives to expand awareness and participation in preventative healthcare programs.

Tutoring Chicago Chicago, IL
Volunteer Tutor *October 2025 - Present*

Tutoring Chicago delivers the power of education to children facing economic barriers through long-term, one-to-one tutoring and high-quality programming. I provide direct, weekly one-on-one mentorship and academic support to a 9th-grade student in math, reading, and science. I hope to not only build academic abilities but also foster confidence and developmental growth.

Champaign County Christian Health Center Champaign, IL
Triage Volunteer *January 2024 - Present*

The Champaign County Christian Health Center is a free, faith-based clinic for the under-insured. Primary responsibilities include patient triage and communicating chief complaints to the on-call physician, with special attention on patient education. Also working to improve outreach for the clinic through educational events in the local community.

One Winter Night, C-U at Home Champaign, IL
Fundraiser and Participant *February 2024 - Present*

One Winter Night (OWN) is an annual outdoor winter event that provides a powerful opportunity for the community to learn about homelessness, build empathy for the people we serve, and raise funds and awareness by spending the night outside. As a member of the Illinois Stamps Community, I help with UIUC fundraisers, outreach, and participation in this experience. Raised over $ 1,000 in 2025

ORGANIZATIONS

University of Illinois at Urbana-Champaign *August 2023 - May 2027*

Film Score Orchestra, MedLaunch UIUC, Illini Medical Screening Society, Biomedical Engineering Society, Phi Delta Epsilon Medical Fraternity, Campus Honors Program

ACHIEVEMENTS

- Selected as 1 of 7 students to receive the Stamps Scholarship, the most selective, merit-based, 4-year scholarship offered at Illinois, founded on the pillars of Scholarship, Leadership, Progress, and Service.

- Chancellor's Scholar in the Grainger College of Engineering, where students interact in diverse coursework of the Campus Honors Program to impact the world.

- National Championship Runner-Up in Financial Analysis (Business Professionals of America)

- Ranked 4th Nationally in Entrepreneurship (Business Professionals of America)

- State Championship Ranked 8th (IHSA Speech)

- National AP Scholar, Seal of Biliteracy (Spanish)