Ibrahim Oladepo

olade018@umn.edu | +1 612 3917702 | St. Paul, MN 55108 | linkedin.com/in/ibrahim-oladepo

Skilled engineer and roboticist dedicated to advancing the frontiers of product design and robotics, leveraging robust expertise in circuit design, embedded software development, and hardware prototyping.

Skills

- **Programming Languages:** Embedded C/C++, Python, Visual Basic
- **Design and Simulation:** MATLAB, SolidWorks, Fusion360, Simulink, KiCad, Autodesk Eagle, Altium
- **Microcontrollers:** AVR, STM32, Teensy, ESP8266
- **Production:** 3D Printing, Lazer Cutting, CNC Milling, Surface Mount Soldering, Content Creation
- **Other Software:** Robotic Operating System, LaTeX, Git, Arduino
- **Communication:** Cross-functional Teamwork, Technical and Design documentation, Presentation Skills

Education

Doctor of Philosophy in Mechanical Engineering 2021 - 2026
University of Minnesota - Twin Cities – Minneapolis, MN

Master of Science in Mechanical Engineering 2021 - 2024
University of Minnesota - Twin Cities – Minneapolis, MN

Bachelor of Science in Electronic and Electrical Engineering 2012 - 2018
Obafemi Awolowo University, Ile-Ife, Nigeria

- Awarded the best student in faculty and department with a GPA of 4.83/5.00.

Projects

Non-Invasive Wearable Vagus Nerve Stimulation Device October 2022 - December 2022
ME 8287: Design of Neurotechnologies Course

- Designed flexible printed circuit boards of different configurations for stimulation purposes.
- Developed an R01 styled grant proposal and presentation for the project.

Fabrication of a Smart Wireless Mobile Phone Battery Charger November 2019 – April 2020
Advanced Engineering Innovation Research Group, Minna, Nigeria

- Fabricated wireless transmitter and receiver using the inductive coupling approach.
- Designed experiments, evaluated collected data, and reported findings through presentations.
- Achieved a power transfer distance of up to 70 millimeters.

Professional Experience

Graduate Research Assistant December 2021 - Present
Biosensing and Biorobotics Laboratory, University of Minnesota Twin Cities

- Design and implement an active computer-vision guided commutator system for neural recording in mice, leveraging robotics and embedded systems technologies.

- Design, implement, and fabricate a multi-camera array for recording neural activity up to 13 mm^2 area of the mice cerebellum at up to 14 µm resolution.
- Design and optimize CAD models for enhanced neural recording optics and lighting solutions.
- Plan and conduct research experiments, process, and evaluate the gathered data, and communicate results through detailed presentations.
- Construct electromechanical systems incorporating seamless sensor and actuator integration.

Product Development Engineer January 2025 - Present
Objective Biotechnology, Minneapolis, USA
- Designed a printed circuit board for a 24V power distribution system in a microinjection robot.
- Engineered and implemented a robust electrical wiring architecture for the microinjection robot.
- Designed and fabricated a custom treadmill and enclosure box for a mice neural imaging device.

Hardware Intern January 2017 – May 2017
Grit Systems Engineering, Lagos, Nigeria
- Produced and troubleshot prototype printed circuit boards for smart meters.
- Configured software for embedded hardware devices using Linux.
- Designed and printed cases for devices using 3D printers.

Selected Publications

Ibrahim Oladepo, Kapil Saxena, Daniel Surinach, Malachi Lehman, and Suhasa B. Kodandaramaiah. *Computer vision–guided open-source active commutator for neural imaging in freely behaving animals*. 2024. Neurophotonics, 11 (3), 034312**.**

Ibrahim Oladepo, Olusegun P. Awe, and Temitayo O. Ejidokun. *Investigation of Radio Spectrum usage Pattern in Ile-Ife, Nigeria using GNU Radio and Universal Software Radio Peripheral*. 2020. Ife Journal of Technology, 27 (1), 32-39.

Teaching

Graduate Teaching Assistant January 2022 - January 2024
University of Minnesota - Twin Cities – Minneapolis, MN
- Helped students get clarity on advanced control systems course homework questions and an undergraduate hands-on lab course.
- Graded over 70 undergraduate students' homework, midterm, and lab reports.

Embedded Systems Design Instructor May 2022 – June 2022
This is Engineering Bootcamp organized by Alo-Timeys
- Introduced 5 beginners to Embedded Systems hardware and software practically.
- Provided various resources and guidance on how to get started and grow.

Certifications
- Altium Designer Essentials – On Demand (Altium Training)
- Mathematics for Machine Learning: Linear Algebra (Coursera)
- Control of Mobile Robots (Coursera)
- Introduction to Embedded Systems Software and Development Environments (Coursera)
- CS50: Introduction to Computer Science (EDX)