

# Moussa Hamzi

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## QUALIFICATIONS

- Semiconductor Fabrication
- 2.5D Heterogenous Integration
- Computer Architecture, Computer Systems Design
- Strong Interpersonal and Communication Skills, Adaptability, and Teamwork and Collaboration

## EDUCATION

**Master of Science, Electrical Engineering**, *University of Dayton, School of Engr.*, Dayton, OH 05/2028

- Relevant Courses: Contemporary Digital Systems, Computer Design

**Bachelor of Electrical Engineering**, *University of Dayton, School of Engr.*, Dayton, OH 05/2026

- Relevant Courses: PCB Design and Manufacturing, Computer Systems Engineering, Electronic Devices, Intro to Semiconductor Manufacturing, Discrete Signals and Systems, Data Analytics Fundamentals

## CERTIFICATIONS

Altium Education PCB Design Course 04/2026

Intel Oasis Rapid Certification 05/2025

## RESEARCH EXPERIENCE

**Memristor Crossbar Application** – *University of Dayton*, Dayton, OH 10/2025 – Present

- Construction of a 4x4 Memristor Crossbar using Known Memristors through breadboarding
- Collecting measurement data and comparing performance, efficiency, with SPICE simulations
- Includes digital to analog conversion, analog to digital conversion, current limiting, uses capacitance as weights
- Crossbar completes mathematical operations in analog and stores data digitally
- Different mathematical operations will be performed using the crossbar to compare data

**Silicon 2.5D Packaging Research** – *University of Dayton*, Dayton, OH 10/2025 – 05/2026

- Packaged silicon dies using Nano Dimension Dragonfly IV PCB 3D Printer
- Created base dielectric layer in which die was glued down onto
- Dielectric with vias and silver nanoparticle ink traces were printed, with traces fanning out to test pads

**AI Band-gap Energy Prediction** – *University of Dayton*, Dayton, OH 09/2024 – 12/2024

- Predicted Band-gap Energy of TMDC's by converting euclidean coordinates to canonical coordinates using Python
- Used AI algorithms SVR and SVC, with a mean squared error (MSE) of 0.00695 and R-squared value of 0.974

## PROJECTS

**Upgradeable Smartphone** – *Vandalia*, OH 06/2024 – Present

- Invented and developed an upgradeable smartphone using available electronics
- Uses upgradeable module containing APU, ram, and storage. Unique PCB being designed to create a final product.

**Vision Walker System** – *University of Dayton*, Dayton, OH 10/2025 – 05/2026

- Led senior design team in building a real-time assistive navigation system for blind and deaf individuals
- Built on Jetson Orin Nano, uses stereo cameras and a time-of-flight sensor for 3D spatial awareness

## EXPERIENCE

**Engineering Lab Assistant** – *School of Engr., Lab Management Office*, UD, Dayton, OH 05/2024 – Present

- Support lab management team in daily needs, using technological and non-technological solutions
- Created student training records management and sign in app for University's Makerspace
- Troubleshooted oscilloscopes, power supplies, multimeters, and function generators
- Trained over 50 high school students in soldering during single day events

## WORK HISTORY

**Food Packer/Runner** – *Ozu852*, Englewood, OH 05/2023 – 05/2024

- Assisted restaurant owners with different technological needs, improved communication skills