Nurahmed Multezem

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EDUCATION

University of Maryland Expected graduation: May 2027
B.S. Computer Engineering: GPA (4.0/4.0) College Park, MD
Montgomery College May 2025
A.S. Computer Engineering: GPA (3.38/4.0) Rockville, MD
Relevant Coursework: Digital Logic Design, Discrete Signal Analysis, Circuits, Data Structures & Algorithms

SKILLS

Programming Languages: C++, Python, MATLAB, VHDL
Embedded Systems: ESP32, Raspberry Pi, Arduino, Microcontrollers, I^2C, SPI, FPGA
Signal Processing & Hardware: Digital Signal Processing (DSP), Oscilloscope, Spectrum Analyzer, Circuit Design
CAD & PCB Design: Simens NX, Creo PTC, Onshape, KiCad, Altium Designer

EXPERIENCE

Computational Sensorimotor Systems Lab - University of Maryland Jun 2025 – Sep 2025
Firmware / Embedded Systems Intern College Park, MD

- Built a real-time gesture recognition and pointing-direction wearable prototype for human–drone interaction by integrating ESP32-S3 embedded firmware (C/C++) with an RF-linked Raspberry Pi base station
- Developed embedded C/C++ firmware on an ESP32, interfacing with an LSM9DS1 IMU over I^2C, packetizing multi-axis motion data for efficient wireless transmission
- Integrated an nRF24L01 RF transceiver to establish wireless communication with a Raspberry Pi base station
- Improved gesture classification accuracy by 13% using an RBF neural network with optimized Python sensor data preprocessing across six gestures (10,800 samples, three participants)

NSF-DREEM - University of Maryland Jan 2025 – May 2025
Signal Processing Researcher College Park, MD

- Designed and implemented a 32.8 kHz ultrasonic sonar module, integrated with an existing 40 kHz system for dual-frequency surface characterization
- Developed and evaluated a multi-stage analog signal processing chain including transducer ping driver, amplification, filtering, logarithmic compression, and peak detection for echo acquisition
- Achieved 1.85 mm object thickness discrimination by leveraging quarter-wavelength (λ/4) destructive interference with frequency-selective targets
- Presented research findings at NSF-DREEM Poster Session and Montgomery College STEM Conference

NASA L'SPACE Mission Concept Academy – Student Participant Jan 2023 – May 2023
Command & Data Handling Role *Silver Spring*, MD

- Developed subsystem architecture design for a mars rover mission concept as part of the command & Data handling (CDH) subsystem
- Contributed to the development of a 120-page Preliminary Design Review (PDR), documenting system architecture, requirements, risks, and design rationale
- Presented CDH subsystem design and received positive technical evaluation from NASA engineers

INSPIRE Lab - University of Maryland Oct 2025 – Present
Undergraduate Research Fellow College Park, MD

- Analysing effective connectivity between brain region of interest in fMRI motor task data by implementing channel capacity, partial correlation, clustering, and other metrics using MATLAB

PROJECTS

Arthropod-Inspired 3D Printed Robots – University of Maryland Jan 2026 - Present
Vertically Integrated Projects (VIP) Member College Park, MD

- Integrating microhydraulics to build compliant structures such as micro-grippers and invertebrate-inspired metamaterials

LEADERSHIPS & AWARDS

- Student Employee of the Year 2024-2025-Montgomery College
- 1st Place – Annual Science, Robotics & Engineering Fair
- Student Government Association | Phi Theta Kappa | IEEE Member