

Nurahmed Multezem

240-872-9870 | nmulteze@umd.edu | linkedin.com/in/nurahmed-multezem | nurahmedab.github.io/MPV1

EDUCATION

University of Maryland

B.S. Computer Engineering

Montgomery College

A.S. Computer Engineering, GPA: 3.38/4

Relevant Coursework: Digital Logic Design, Discrete Signal Analysis, Circuits, Data Structures & Algorithms

Expected graduation: May 2027

College Park, MD

May 2025

Rockville, MD

SKILLS

Programming Languages and RTL: C++, Python, Java, Verilog, SystemVerilog, TCL, Bash

EDA and Hardware Tools: Cadence, Verilator, ModelSim, GTKWave, Lint, Timing Analysis, Formal Verification

Concepts: RTL Design, Synthesis, PPA Optimization, Verification Coverage, Microarchitecture, Data Path Design

Other Tools: Matlab, Wolfram Mathematica, Git, Linux Shell Scripting, Jupyter, Siemens NX, Onshape, Creo PTC

EXPERIENCE

INSPIRE Lab - University of Maryland

Undergraduate Research Fellow

Oct 2025 - Present

College Park, MD

- Analysing functional connectivity between regions of interest (ROIs) in fMRI motor-task data using partial correlation and channel capacity metrics to improve understanding of cognition

Computational Sensorimotor Systems Lab - University of Maryland

Firmware / Embedded Systems Intern

Jun 2025 – Sep 2025

College Park, MD

- Built a real-time gesture recognition and pointing-direction wearable prototype for human-drone interaction by integrating ESP32-Tiny-S3 firmware (C/C++) with RF-linked Raspberry Pi 5 base station
- Improved gesture classification accuracy by 13% using RBF network with optimized C++/Python preprocessing across six gestures (10,800 samples, three participants)

Computational Sensorimotor Systems Lab - University of Maryland

Signal Processing Researcher

Jan 2025 – May 2025

College Park, MD

- Designed and tested a 32.8 kHz sonar prototype module, achieving 1.85 mm spatial resolution in surface texture detection in a controlled lab setting
- Presented research findings at NSF-DREEM Poster Session and Montgomery College STEM Conference by preparing technical demonstrations and posters

NASA L'SPACE Mission Concept Academy - Student Participant

Command & Data Handling Role

Jan 2023 – May 2023

Silver Spring, MD

- Optimized Mars rover subsystems within a 30 kg mass constraint by modeling components in Siemens NX
- Co-led a 10-member team to produce a 120-page PDR reviewed positively by NASA engineers

PROJECTS

Two-Level Dynamic Branch Predictor | SystemVerilog, Verilator, Yosys, Python

May 2025 – Jun 2025

- Designed a configurable branch predictor with saturating counters and global history logic, achieving 90% prediction accuracy while analyzing LUT utilization and timing across configurations
- Automated functional simulations using Verilator and Python-generated branch traces to evaluate prediction accuracy and area trade-offs

Cache Controller Verification Environment | SystemVerilog, cocotb

Jun 2025 – May 2025

- Built a cocotb-based constrained-random testbench for a direct-mapped cache controller, achieving 100% functional coverage with assertions and protocol checks
- Integrated waveform analysis using GTKWave and automated simulations with Makefiles, reducing verification time by ~15% across repeated test runs

LEADERSHIPS & AWARDS

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