

Nurahmed Multezem

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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
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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, On shape, Creo PTC

EXPERIENCE

INSPIRE Lab - University of Maryland <i>Undergraduate Research Fellow</i>	Oct 2025 - Present College Park, MD
<ul style="list-style-type: none">Analysing functional connectivity between region of interests (ROIs) in fMRI motor-task data using partial correlation and channel capacity metrics to improve understanding of cognition	
Computational Sensorimotors Systems Lab - University of Maryland <i>Firmware / Embedded Systems Intern</i>	Jun 2025 – Sep 2025 College Park, MD
<ul style="list-style-type: none">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 stationImproved gesture classification accuracy by 13% using RBF network with optimized C++/Python preprocessing across six gestures (10,800 samples, three participants)	
Computational Sensorimotors Systems Lab - University of Maryland <i>Signal Processing Researcher</i>	Jan 2025 – May 2025 College Park, MD
<ul style="list-style-type: none">Designed and tested a 32.8 kHz sonar prototype module, achieving 1.85 mm spatial resolution in surface texture detection in a controlled lab settingPresented 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
<ul style="list-style-type: none">Optimized Mars rover subsystems within a 30 kg mass constraint by modeling components in Siemens NXCo-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
<ul style="list-style-type: none">Designed a configurable branch predictor with saturating counters and global history logic, achieving 90% prediction accuracy while analyzing LUT utilization and timing across configurationsAutomated 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
<ul style="list-style-type: none">Built a cocotb-based constrained-random testbench for a direct-mapped cache controller, achieving 100% functional coverage with assertions and protocol checksIntegrated 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