

## EDUCATION

**University of Maryland, College Park**  
*Bachelors of Science, Aerospace Engineering*  
*Bachelors of Science, Computer Science*

College Park, MD

GPA: 3.7/4.0

December 2027

## CORE SKILLS

**Programming & Data:** Java, Python, C, MS Office, OCaml, Assembly, MATLAB, Object-Oriented Programming  
**Fabrication & Prototyping:** 3D Printing, Laser Cutting, Woodshop, Rapid Prototyping, CAD & Modeling, Simulink  
**Languages:** English, Tigrinya

## PROJECT WORK

### Missile Guidance, Navigation, and Control Simulator *Independent Project*

Fall 2025

- Built a full missile GNC simulation environment using MATLAB/Simulink, integrating LQR/LQG control, airframe state-space modeling, and Kalman filtering.
- Implemented guidance logic for target homing, obstacle avoidance, and flight-path angle control using geospatial coordinate transforms and 3-DOF kinematics.
- Modeled sensor noise, actuator limits, and Earth-fixed position propagation to evaluate controller robustness.
- Tools: MATLAB, Simulink, Control Systems Toolbox

### Over Terrain Vehicle Design *ENES100*

Fall 2023

- Designed and programmed an autonomous OTV to navigate terrain, detect flames, and execute suppression tasks.
- Integrated sensors, micro-controller controls, and obstacle avoidance logic under randomized conditions.
- Tested and validated system performance in multiple simulated scenarios.
- Tools: Arduino/C++, MATLAB, SolidWorks

### Hybridized Electrical Input Solar Aircraft Testbed *ENAE100*

Spring 2025

- Analyzed aircraft power draw and solar panel output to evaluate hybrid battery–solar viability.
- Conducted flight tests and performance modeling, achieving a 12.1% flight time increase using four solar panels.
- Collected and processed experimental data to support hybridization analysis.
- Tools: MATLAB, Data Acquisition, Flight Testing

### Graph Library Implementation *CMSC216*

Spring 2025

- Designed and implemented a dynamic graph library using linked data structures and pointer-based memory management.
- Extended functionality with node/edge removal and full graph deallocation to ensure correct memory handling.
- Ran automated test suites to verify library correctness and memory safety.
- Verified correctness and memory safety through gdb, custom makefiles, and automated test suites.

### Online Test System *CMSC132*

Fall 2024

- Implemented the model component of an online test system using object-oriented design principles.
- Designed and built multiple classes (e.g., SystemManager, question types) to handle exam creation, grading, and statistics.
- Used Java collections and serialization for data storage and retrieval; passed all public tests verifying system functionality.

## EXPERIENCE

### Debre Selam Medhane Alem Eritrean Orthodox Tewahedo Church

Colmar Manor, MD

*Deacon, Youth Leader, Choir Leader, Sunday School Teacher*

July, 2017 – Current

- Lead deacon serving in liturgy; assist priests with rites, organize services, and guide congregational hymns.
- Serve as Afe Memhr (assistant to clergy instructors): mentor and test junior deacons, enforce standards, schedule servers, and coordinate priest–deacon meetings.
- Organize and lead youth programs and faith workshops across the DMV, strengthening community engagement.
- Teach weekly Sunday School for ages 15–20; deliver sermons to a 300-person congregation.
- Lead choir instruction for youth and adults; teach mezmur and coordinate performance readiness.
- Instructor for 8-week summer program teaching Bible studies, hymns, and Tigrinya/Ge'ez to students aged 4–16.

## LEADERSHIP & ACTIVITIES

### UMCP National Society of Black Engineers, Member

Fall 2023 – Current

- Attended workshops and collaborated on engineering projects.
- Supported STEM outreach for underrepresented students.

### Eritrean-Ethiopian Student Association, Secretary

Fall 2024 – Spring 2025

- Organized meetings and managed communications for the association.
- Coordinated events and initiatives to engage members and promote cultural awareness.

## CERTIFICATIONS

- SolidWorks CSWA
- MATLAB Associate Certification
- Python PCAP