

EDUCATION

UNIVERSITY OF MARYLAND

GPA: 3.5 | College Park, MD | Class of 2027

B.S. Electrical Engineering; Robotics and Autonomous Systems (RAS); Interdisciplinary Business Honors College (IBH)
Relevant Coursework: Electric Circuits; Discrete Signal Analysis; Digital Logic Design; Special Relativity and Quantum Mech;
Micro/Nano Electronics; Signal/System Theory; Electromagnetics; Fund. of Machine Learning; Robotics Programming

PROFESSIONAL EXPERIENCE

LOCKHEED MARTIN CORPORATION

Severn, MD

Electrical Engineering Intern | Space IGNITE: IAD Rapid Solutions

2026-Present

- Design RF TX/RX PCBs in Altium Designer for satellite communication systems, schematic capture to board bring-up
- Program VHDL-based hardware drivers and testbenches for ADC/DAC boards using SPI and I2C interfaces, validating digital logic on \$400M and \$250M satellite contracts
- Independently develop remote control testing pipeline for mixed signal boards (ADC/DAC, FPGA) in active deployment
- Build an adaptive AOI system to streamline PCB manufacturing, retaining development IP on locally hosted ML model

RYE TECH & ANALYTICS, INC.

Baltimore, MD

Business Coordinator

2022-2026

- Securing certifications, i.e., GSA MAS, Maryland MBE, and SBA 8(a), enabling bidding and expanding procurement
- Primary contracts with USDHS and USHHS involving mission-critical cybersecurity and data analytics systems

-Business Strategy and AI Research with Basys.ai

Cambridge, MA

- Developed a Retrieval-Augmented Generation (RAG) pipeline using Python and vector databases; optimized vector retrieval precision and reinforcement learning, cutting AI hallucination rate by 35% on clinical prior-authorization data

FEATURED PROJECTS

AUTONOMOUS BLOCK MANIPULATION SYSTEM

College Park, MD

Robotics Laboratory | Python, ROS2, Docker, Gazebo, UR3e Arm

2025

- Engineered an end-to-end robotic manipulation pipeline integrating computer vision perception, kinematics, and control to autonomously locate, grasp, and stack colored blocks with end-effector positional error under 5 mm
- Derived and implemented an algorithm using forward and inverse kinematics via Denavit–Hartenberg parameters, SE(3) transforms, and velocity kinematics and full Jacobian-based control to compute feasible joint configurations for 6 DOF
- Architected a multi-node ROS2 Python control system for motion planning/UR3e execution, safety checks via Docker

DIGITAL SYSTEMS DESIGN ON FPGA | VERILOG + BASYS3/NEXYS2 BOARD

College Park, MD

Digital Circuits and Systems Laboratory | Vivado, PSpice, VHDL, C++, ASM, Verilog

2024

- Designed complex digital systems, i.e. sequential multiplier, floating-point adder, with synchronized multi-clock domains for real-time embedded autonomy/low-latency computation, and datapaths with registers, ALUs, MUXes, and shifters
- Developed C/C++ and Assembly code for hardware interfacing, testing, and system validation in lab environments

SEMICONDUCTOR TECHNOLOGY & MANUFACTURING STUDY

Hsinchu, Taiwan

Taiwan Semiconductor Manufacturing Company (TSMC)

2025

- Studied advanced semiconductor fabrication processes during site visits to TSMC R&D and production facilities, analyzing workflow stages including FEOL/BEOL, EUV lithography; collaboration with National Taiwan University

FORMULA SAE INTERNAL COMBUSTION RACECAR

College Park, MD

Terps Racing Formula SAE IC Governance and Business Ops. Lead

2025-Present

- Managed full operations and procurement for a \$75K–\$100K annual program, overseeing parts sourcing, manufacturing logistics, and sponsor partnerships for full vehicle development lifecycle; won Cummins Innovation Award Trophy 2026

FIRST TECH CHALLENGE: TEAM CRYPTIC #20123

Ellicott City, MD

Robotics Team Captain

2019-2023

- Manufactured and designed custom parts using CAD/CAM and developed PID controllers for precise movements
- Programmed autonomous routines using encoder feedback and IMU sensors, achieving 90% line-tracking accuracy
- Awards: Top 10 in Mid-Atlantic; 4x Inspire, 2x Connect, 5x Design, 3x Innovate, 2x Dean's List, 3x Regionals & beyond

SKILLS

Core: Project Management, Technical Writing, Product Development, Statistical Modeling, Signal Processing, Algorithm Design

Programming: Python, Java/JavaScript, C, C++, Linux/Unix, Verilog, MATLAB, HTML, SQL, R, ROS2, ASM, VHDL

Languages: Fluent in Bengali and English (native), Reading Proficiency in Arabic, Intermediate in Spanish, Hindi, and Urdu

Tools: CAD, CAM, VMWare, VirtualBox, TensorFlow, OpenCV, MS Azure/Excel, JIRA, CNC, Ubuntu, Docker, Altium