MADYANN SAIDI

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EDUCATION

UNIVERSITY OF MARYLAND – College Park   *May 2028*
4.00 GPA - B. S. Mechanical Engineering
QUEST Honors Program, Cohort 45 | University Honors Citation

RESEARCH & INTERN EXPERIENCE

Drone Software Intern - UMD's XPRIZE WILDFIRE COMPETITION TEAM   *Aug. 2025–Present*
- Developing an incipient fire detection model with 32,000+ data points and automating path planning/data transmission systems, enabling coordination with a separate suppression drone.

Research Fellow - NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)   *May. – Aug. 2025*
- Created an ADMET test setup and analyzed human-robot contact pressure distribution on 7 cylindrical objects, providing critical cross-validation data to refine FEA simulation precision.
- Developed a MATLAB-based closed-loop analysis tool for Pressure Sensitive Film results, reducing data analysis time ~30× (from 30 minutes to 1 minute) and offering ~100+ customizable parameters for thorough testing.
- Designed 3 bimanual manipulation test procedures on an ABB Yumi robot using RobotStudio, enabling 6-axis force/torque data capture. Programmed ABB Yumi to autonomously solve a 2x2x2 Rubik's Cube in ~20-30 min.

Research Assistant/Intern - NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)   *Jun. 2023–Jun. 2024*
- Redesigned ICRA manipulation board in SolidWorks into 4 modular quadrants to optimize layout and manufacturability, increased task complexity 1.5×, and reworked a 12-page manual utilized by university teams.
- Conducted grasp-strength benchmarking with a standardized sensor rig to test 3 robotic hands (2 commercial, 1 Yale OpenHand), collecting performance data that validated a new grasping standard test method.
- Optimized the Yale OpenHand Model T in SolidWorks to improve its durability by 5× and boost grasp strength from 11 N to 34 N (~3×), receiving commitment for redesign inclusion in future iterations.

PROJECTS & LEADERSHIP ROLES

Mechanical Officer - QUADRUPED ROBOTICS CLUB (Testudog)   *Jun. 2025–Present*
- Leading the mechanical subteam of a 30+ member robotics organization by coordinating design, prototyping, and testing efforts to advance quadruped robot balance, dynamics, and hardware software integration.

Project Manager/Lead Programmer - SEED PLANTING OTV (Over-Terrain Vehicle)   *Jan. – Jun. 2025*
- Directed 8-person team through Trello and weekly meetings to develop autonomous Arduino-based OTV; achieved 100% mission success, collecting 200% minimum payload in under 3 minutes; awarded Best Mission Award.
- Engineered a full autonomy pipeline using ArUco marker localization, PID control tuning, and a calibrated color sensor to achieve 95% classification accuracy for seed planting and rock retrieval missions.

Designer - PROSTHETIC HAND, PROJECT M²   *Sep. 2024–Jan. 2025*
- Accomplished 32 unique finger configurations and ~90% functional dexterity by designing and iterating a pulley-driven single-motor prosthetic hand in SolidWorks.

CAD Design Lead - FRC ROBOTICS - TEAM 1389   *Sep. 2023–Jun. 2024*
- Mentored 15+ teammates in CAD modeling and design-for-manufacturing principles; improved team design collaboration efficiency by 50% through structured training and peer feedback sessions.
- Led mechanical chassis redesign and integrated a 4-roller shooter with an autonomous ArUco vision aiming system; increased accuracy by 85% and durability 150%, reducing on-site repairs during competitions.

SKILLS

Skills: SolidWorks (CSWA & CSWP), MATLAB, Python, Java, ABB RobotStudio, Arduino, robotics programming, vision systems, machine learning, leadership, team collaboration, project management.

Languages: English (native), French (fluent), Lebanese Arabic (proficient)

AWARDS

BEST MISSION AWARD – *University of Maryland*   *2025*
BEST CONSTRUCTED VEHICLE - HONORABLE MENTION – University of Maryland   *2025*
BEST AUTONOMOUS AWARD – Chesapeake District Robotics FIRST competition   2022