Hadi Almadani

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EDUCATION

University of Massachusetts Amherst — Amherst, MA
Bachelor of Science in Mechanical Engineering — Expected May 2026

- GPA: 3.5/4.0 | CSWA Certified (SolidWorks) | Benjamin E. Thomas J. Zampell & High Demand Scholarship Recipient
- Achievement Concierge Team Member – Provided academic resources, organized events, and supported student success.

EXPERIENCE & LEADERSHIP

SubCom — Newington, NH
Process Engineering Intern — June 2025 – Sep 2025

- Developed structured troubleshooting flowcharts and visual diagnostic tools for high-volume cable manufacturing equipment, improving troubleshooting consistency and reducing response time across production shifts.
- Created process flow diagrams and fault-isolation logic for critical equipment (welder, strander, caterpillar), enabling faster root-cause identification.
- Collaborated with process engineers and technicians to translate undocumented tribal knowledge into standardized, repeatable diagnostic logic used on the production floor.

UMass SuperMileage Vehicle (SMV) — Amherst, MA
Engine Team Designer — September 2024 – May 2026

- Led the design and manufacturing of a custom fuel intake system, owning the component from SolidWorks CAD through fabrication and vehicle integration.
- Designed precision aluminium components in SolidWorks with tolerance control, threaded interfaces, and sealing features; validated designs using ANSYS FEA.
- Machined and iterated functional prototypes using manual milling and tapping, refining geometry based on fitment, manufacturability, and system performance requirements.

The Moving Solution — Beverly, MA
Co-Founder — January 2023 – January 2024

- Co-founded and operated a service business, managing logistics, scheduling, and customer operations, generating $30K in revenue.

PROJECTS

2-DOF Robotic Arm with Dual-MCU Closed-Loop Control — November 2025

- .Designed and built a full mechatronic system integrating mechanical design, sensing, actuation, and embedded control loops.
- Architected a dual Arduino RP2040 system separating high-level logic from real-time PID motor control via I²C communication.
- Designed and fabricated all structural components in SolidWorks and 3D printed them to minimize backlash and compliance.

Lightweight Torque Wrench for Mars Applications — April 2025

- Designed a lightweight torque wrench under strict mass and structural constraints using SolidWorks and ANSYS FEA.
- Performed stress, displacement, and factor-of-safety analysis under combined torque and off-axis loading conditions.
- Manufactured and iterated prototypes via CNC machining and 3D printing, integrating modular jaws and onboard spare storage.

PCB Mounting Assembly - Sheet Metal Design (BU04 Lead) — September 2025

- Led sheet-metal design of a constrained PCB mounting assembly, applying DFMA, GD&T, and tolerance stack-up analysis.
- Coordinated water-jet cutting, manual brake forming, inspection, and first-article validation across business units.

Fuel Intake System - Design & Machining (SMV) — October 2025

- Designed and machined a precision aluminium fuel intake system from SolidWorks CAD through fabrication and integration.
- Applied tolerance control, threaded interfaces (1/4" nPT), and physical fitment testing to ensure leak-free performance.

Autonomous Mobile Robot with Obstacle Avoidance — December 2024

- Designed and built an autonomous robot using Arduino, DC motors, and ultrasonic sensors for real-time obstacle detection.
- Implemented control logic in C++ to process sensor data and dynamically adjust motion in unstructured environments.

SKILLS

CAD & Analysis: SolidWorks (CSWA), ANSYS (FEA), GD&T, DFMA
Manufacturing: Six Sigma Green belt (expected May), CNC & manual machining, 3D printing, sheet metal fabrication
Programming & Controls: MATLAB, Python, C/C++, Simulink, Arduino
Languages: English, Arabic