Matthew Dolan

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EXECUTIVE SUMMARY

- Design-oriented Mechanical Engineer with professional experience in Robotics, New Product Development, and Defense.
- A strong CAD background in SOLIDWORKS and PTC Creo, practical knowledge of rapid prototyping tools and high-volume production design principles, and team leadership experience combine to make a diverse mechanical design background.

EDUCATION

UNIVERSITY OF MASSACHUSETTS LOWELL

- M.S. Mechanical Engineering
  - Concentration in Thermofluids
- B.S. Mechanical Engineering

TECHNICAL SKILLS

- CAD: SOLIDWORKS and PTC Creo, including FEA Simulations
  - CSWP, CSWPA in Sheet Metal, Weldments, Drawing Tools
- MATLAB & Simulink, SysML in MagicDraw, Rapid Prototyping and 3D Printing Technologies, Python, Windchill PLM, Ansys FEA

PROFESSIONAL EXPERIENCE

SENIOR MECHANICAL ENGINEER | AMAZON ROBOTICS | JUNE 2024 – PRESENT

Amazon Robotics designs, manufactures, deploys, and manages the fleet of warehouse robots that allow Amazon to perform at a global scale. As a Senior ME I worked with field reliability teams to design custom tools for in-field recovery and repair of robots and equipment. Contract role through Beacon Engineering Resources.

- Designed and delivered quick-turn solutions to critical safety risks, for both new product and existing in-field equipment
- Ground up system design of a novel storage pod mobility solution, with intended global deployment starting in 2025.
- Owned several complex tools while providing guidance to more junior MEs on the Custom Tools team.
- Performed structural analyses in Ansys to confirm compliance to internal safety standards

STAFF MECHANICAL ENGINEER | IROBOT CORPORATION | DECEMBER 2019 – PRESENT

iRobot is the global leader in home robotics. As a Staff Mechanical Engineer at iRobot, I designed, developed, and owned several subsystems and programs from early phase ideation through product EOL.

- Extensive design of Injection Molded Plastic, Compression Molded, 3D Printed, Overmolded, and Sheet Metal parts through PTC Creo & Windchill
- Determined subsystem architecture, component selection, detailed design, production ready drawings, and granular DFM
- Managed 3rd party ODM/JDM ME resources during redesign projects on the Braava jet m6, resulting in $300k+ YOY cost reduction while improving performance in key reliability areas.
- Designed several complex electromechanical systems, including:
  - Several grey water sanitation systems, including risk and application recommendations for each
  - Subsystem owner of all ramp and charging components on the j9+ Auto-Fill dock
    - Led charging contact development and improvement efforts on the Roomba j9+ and Braava Jet m6 robot and docks
    - Redesigned contacts, contact materials, and electroplating structure to improve reliability while reducing cost on all current and future wet mopping products
  - Peristaltic pump pre- and post-filter systems, watertight + thermally stable PCBA enclosures, and water management systems for several programs.
  - Supported COVID-19 PPE production by redesigning a face shield for improved manufacturability for Brigham & Women's Hospital

MECHANICAL ENGINEER I | RAYTHEON | JUNE 2019 – DECEMBER 2019

My time at Raytheon was spent working as a Mechanical Engineer I on the trailer shelters of the AN/TPY-2 radar system.

- Managed document release status for the THAAD AN/TPY-2 Radar System, including ECN processing and tracking
- Improved corrosion resistance of several exterior COTS and in-house manufactured components on AN/TPY-2's trailer shelters
- Recommended thermal management improvements through simulation of a variety of potential solutions in PTC Creo Simulate

Internship Experience

LEAD MECHANICAL ENGINEERING R&D INTERN | IROBOT CORPORATION | SEPTEMBER 2018 – MAY 2019

- Designed solutions for new consumer products as part of the Mechanical Engineering Team while guiding other ME interns

SOLIDWORKS PRODUCT DEFINITION R&D INTERN | DASSAULT SYSTEMES | JANUARY – SEPTEMBER 2018

- Supported development projects focused on reverse engineering, rapid prototyping, and *.STL geometry recovery tools

SAGE IV MODEL BASED SYSTEMS ENGINEERING INTERN | NASA LANGLEY RESEARCH CENTER | FALL 2017

- Modeled system-level requirements and analyzed component interactions in SysML, MATLAB, and Python for the SAGE IV GDS

TEAM LEAD, ATTITUDE CONTROL SUBSYSTEM | UMASS LOWELL SPACEHAUC SATELLITE | FEBRUARY 2016 – MAY 2017

- Organized a multidisciplinary team of engineers and scientists and helped plan the utilization of a $200,000 grant from NASA

PROJECTS AND EXTRACURRICULARS

- Assisted in volunteer design and test work on the RISE (Robots in Service of the Environment) Guardian lionfish hunting Autonomous Underwater Vehicle
- Designed and manufactured a variable pitch propeller system for use in the annual “Race to Alaska” event
- Built and tested a quadcopter with a group of fellow interns in the Fall of 2017
- Captain of UMass Lowell’s Rowing Team – Fall 2013 to Spring 2017
- Successfully hiked all 48 New Hampshire peaks above 4000 feet
- Avid sailor and maintainer of a 1964 Pearson Commander sailboat
- Currently restoring a 2nd
- Experienced and enthusiastic backcountry snowboarder