

Omar El Gazzar

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EDUCATION

Johns Hopkins University - Baltimore, MD	05/ 2023
Master of Science in Mechanical Engineering	

University of Houston- Houston, TX	05/ 2019
Bachelor of Science in Mechanical Engineering	

EXPERIENCE

Northrop Grumman, Ocean Springs, MS	09/ 2022 – Present
Principal Mechanical Engineer - Regional Strike Launcher Programs	

Conventional Propt Strike Hypersonic Launcher System

- Support the design and development of an underwater hypersonic missile launcher system
- Lead cognizant engineer for 31 electrical harness and junction box assemblies from concept through production
- Dispositioned ~60 design and requirement deviations to enable first-round hardware production
- Designed cabling and piping hardware, releasing 13 engineering drawings (4 brand new designs)
- Authored verification reports and created electrical acceptance tests for launcher subsystems

Honeywell Aerospace, Tempe AZ	01/ 2020 – 09/2022
Mechanical Engineer - Pneumatic, Electromechanical, & Hydraulic Actuation Systems	

T-55 Engine Program - Pneumatic Bleed Valve

- Led the mechanical design of the T-55 pneumatic butterfly bleed valve with 13+ complex assemblies

Phalanx Pneumatic Gun Drive Actuator

- Successfully led and completed an RCCA on the Phalanx pneumatic control system
- Developed a basis of estimate for a 1.8-million-dollar proposal by utilizing the Aerospace Estimation Tool
- Evaluated vendor nonconformances and worked with stakeholders to update the drawings appropriately

Sentinel (GMLRS) Thrust Vector Actuator

- Applied Matlab and DIAdem tools to analyze actuator test data for possible controller firmware modifications
- Assessed possible failure modes in the internal supply chain processes by utilizing Lean Six Sigma tools

Ground-Based Strategic Deterrent (GBSD) Thrust Vector Actuator

- Generated procurement specifications for early lead gage and differential pressure transducers
- Supported the program kickoff meeting with the major Honeywell customers

International Space Station Docking System

- Applied Six Sigma statistical methods in Minitab to evaluate whether torque limiters from a vendor batch exhibited a statistically significant systemic failure

Design Automation Group

- Automated part standardization within Siemens NX using family tables, improving design reuse and efficiency
- Helped manage and maintain the database of all vendor-controlled drawings and models at Honeywell Aero

PROJECTS

ROS 2 Mobile Robot – Differential Drive Platform	7/2025 - Present
Raspberry Pi 4 • Arduino Nano • Cytron MDDS30 • DC Motors w/ Encoders • LiDAR • Depth Camera	

- Designed and integrated a mobile robot platform with encoder feedback and ROS 2 teleoperation
- Built URDF and TF tree for base chassis; validated transforms and kinematics in RViz
- Implemented closed-loop motor control for improved velocity tracking

Modern Robotics Capstone – Mobile Manipulator Simulation (2025)	6/2025 - Present
Python • CoppeliaSim • Sampling-Based Planning • Feedback Control	

- Implemented full kinematic control pipeline for a mobile manipulator using Screw Theory and SE(3) transform
- Developed TrajectoryGenerator for smooth Cartesian end-effector motion
- Designed and tuned closed-loop feedback controller for stable tracking and object pick-and-place execution
- Demonstrated accurate execution of motion plans in CoppeliaSim

Rocket Team Project Manager	08/ 2018 – 07/2019
Managed a team of 13 engineering students to design, fabricate, and launch a high-powered 12ft rocket to test an experimental payload and compete in the Intercollegiate Rocket Engineering Competition (IREC)	

- Designed the system architecture and a comprehensive plan for the full project life cycle
- Successfully placed 22nd from 121 international teams, making us the highest-placing school in Texas

SKILLS

- CAD (NX, CREO, Solidworks)
- Production Resource Planning (SAP)
- GD&T (Y14.5-2009)
- Config Management (TeamCenter, Integrify)

