# Mena Al Mandalawi

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## EDUCATION

**California State Polytechnic University, Pomona** – Pomona, CA — Aug. 2020 – May 2024
Bachelor of Science in Mechanical Engineering — GPA 3.47

## WORK EXPERIENCE

**Operations Engineer,** ASTRO - Additive Science & Tech Research Ops – Los Angeles, CA — Jan. 2023 – Present

- Trained in cryogenic, elevated temperature, and room temperature tensile testing, low cycle and high cycle fatigue testing, polishing, and metallurgical analysis of additively manufactured metal materials for space applications.
- Designed and implemented an automated polishing tool, enhancing polishing efficiency and quality by 20% while reducing labor costs by 50%, saving the company significant operational expenses.
- Used MATLAB to generate different programs on machinery to improve the system of production.
- Created part drawings in compliance with ASTM standards to ensure accurate additive manufacturing specifications.
- Diagnosed and resolved calibration, material inconsistencies, and equipment malfunctions for mechanical testing systems, ensuring accurate tensile and fatigue testing results under varying conditions.
- Evaluated material properties using ASTM-compliant methods to identify defects such as cracking and porosity, contributing to failure analysis investigations and production process improvements.
- Created and updated Standard Operating Procedures (SOPs) for production machinery and metallurgical processes and trained operators on proper workflows to ensure consistent adherence to operational standards.
- Authored detailed NCRs by systematically identifying and addressing production issues through the 5 Whys methodology.
- Led Corrective and Preventative Action (CAPA) initiatives to address failures in production and improve future project outcomes. Documented and executed action plans to mitigate risks and enhance system reliability.
- Inspected parts and production systems per established protocols to guarantee adherence to Good Manufacturing Practices (GMP) and QA regulations, ensuring high-quality product output.

**Laboratory Assistant,** San Bernardino County Department of Public Health – Ontario, CA — Jan. 2021 – Jan. 2024

- Conducted PCR testing and whole genome sequencing for identifying COVID-19 variants and performed wastewater and vector surveillance testing for viral pathogens, contributing to public health safety measures.
- Oversaw HAZMAT waste regulation across multiple lab sections, coordinating recurring pickups and implementing safety protocols to streamline hazardous material management.
- Managed inventory of $500,000 worth of medical and office supplies, maintaining uninterrupted laboratory operations.
- Authored and updated Standard Operating Procedures (SOPs) for laboratory workflows.
- Trained staff on laboratory practices and protocols in compliance with OSHA standards.

## PROJECTS

**Ductwork and Air Pollution Control System** — Jan. 2024 – May 2024

- Designed and optimized a kaolin gas stream air pollution control system using SolidWorks, achieving 80% particle collection efficiency while reducing energy consumption by 15%.
- Ensured compliance with environmental and corrosion standards by calculating air velocity, collection efficiency, and pressure loss using industry-standard formulas, conducting simulations to minimize turbulence.

**Inverted Pendulum Control System** — Aug. 2023 – Dec. 2023

- Engineered an electromechanical system for dynamic load balancing applications using MATLAB and Simulink.
- Designed a PID control algorithm to stabilize an inverted pendulum in real time, optimizing system performance through hardware prototypes and testing.

**Car Suspension FEA Analysis** — Aug. 2023 – Dec. 2023

- Developed a detailed SolidWorks model of a car suspension system, incorporating joint design to improve mesh quality and ensure accurate simulation results.
- Conducted static analyses of displacements, stresses, and load reactions using FEMAP/Nastran, ensuring structural performance under dynamic conditions.

## SKILLS

- **Software:** SolidWorks, FEMAP/Nastran, MATLAB, Simulink, Keyence, VBA, Microsoft Office Suite
- **Testing Expertise:** Cryogenic, fatigue, and tensile testing; ASTM standards compliance; GD&T
- **Other:** 3D Printing, Data Analysis, Critical Thinking, Time Management
- **Languages:** English (Fluent), Arabic (Fluent), French (Intermediate)