

Omar Mohamed Amer^(He/Him)

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Location: Cairo, Egypt

SUMMARY STATEMENT: I am a Mechatronics student at MSA University, validated by Greenwich University, with a strong passion for mechanical design, automation, robotics, and energy systems. I am eager to solve engineering challenges by applying my skills in CAD tools such as SolidWorks (CSWP Certified), Catia, with a focus on real-world applications, I aim to collaborate with professionals and continue expanding my knowledge in mechanical engineering, machine learning, and data science.

EDUCATION

October University for Modern Sciences & Arts (MSA University), Verified by Greenwich University;

GPA: 3.24/4.0; Cairo, Egypt

Expected Graduation: June 2027

- Bachelor of Science (BSc): Mechatronics Engineering

Relevant Coursework

- Mechanical Design (SolidWorks), Fluid Mechanics, Thermodynamics, Electric Machines, Theory of Machines, Metallurgy, Manufacturing Processes

Internships

Engovation: Automotive Program – onsite

Sept 2024 - Oct 2024 Automotive Engineering Intern

- Collaborated with a team to analyze and optimize automotive systems, focusing on internal combustion engines, chassis systems, and suspension design.
- Led efforts in troubleshooting automotive systems, including diagnostics for air gates, lubrication systems, and cooling mechanisms.
- Participated in hands-on workshops and case studies, gaining practical experience in fault analysis and maintenance of automotive systems.

Field Trips

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- **Al-gioshy Steel, 6th October City**

Nov 2024

Gained insights into the steel manufacturing process, from raw material processing to finished products. The visit highlighted the role of automation, precision, and quality control in producing high-quality materials for industries, particularly automotive and construction.

- **Sumitomo Electric, 6th October City**

Mar 2024

Explored the production of electric wires and cables for automobiles, learning about their critical role in vehicle performance and safety. This visit enhanced my understanding of automotive-grade electrical components and manufacturing standards.

- **Juhayna Food Industries, 6th October City**

Jul 2024

Focused on the role of automation in packaging and manufacturing. The trip provided insights into how automation improves production efficiency, consistency, and quality control in large-scale facilities.

Volunteering

- **IEEE MSA Robotics Team Member** —Sept 2023 - Present
Collaborate with team members to design and build robotic systems, participate in IEEE MSA events, workshops, and competitions focused on robotics and automation.

SKILLS/CERTIFICATIONS

Technical Skills:

- | | | | |
|---------------|-------------------|--------------------|------------|
| • SOLIDWORKS | Autodesk Inventor | Autodesk Fusion360 | AutoCAD |
| • 3D-Printing | MATLAB | Arduino | IOT |
| • Proteus Pro | PCB Design | C++ | C-Language |
| • Python | Data Structure | Algorithms | SDLC |

Personal Skills:

- | | | | |
|-------------------|-----------------------|--------------------|--------------|
| • Problem Solving | Mathematical Thinking | Collaborative work | Presentation |
| • Researcher | Communication | Time Management | Leadership |

Certifications

- | | |
|---|-----------|
| • Certified SOLIDWORKS Professional (CSWP) by Dassault Systèmes | Dec 2024 |
| • Certified SOLIDWORKS Associate (CSWA) by Dassault Systèmes | Nov 2024 |
| • Mechanical Design via SolidWorks | Sept 2024 |
| • Introduction to Artificial Intelligence by IBM (Coursera) | Apr 2024 |
| • Introduction to Software Engineering by IBM (Coursera) | Feb 2024 |

Projects

Design a 5-Cylinder Radial Internal Combustion Engine Mechanism, MSA University Dec 2024

- Enhanced a radial internal combustion engine mechanism, focusing on 3D modeling and performance optimization.
- Collaborated on a project integrating mechanical design, embedded systems, and IoT, using SolidWorks for modeling and optimizing motion control systems.
- It also reinforced the importance of balancing theoretical knowledge with practical implementation.

Environmental Weather Station, MSA University Dec 2024

- Created and expanded a weather station system to monitor various environmental parameters.
- Integrated 10 different sensors for temperature, humidity, pressure, and other environmental factors.
- Ensured efficient data collection and analysis, with a focus on accurate real-time monitoring and reporting.

Design and Optimization of Motor Selection and Sizing for Elevator Systems, MSA University Dec 2024

- Analyzed and optimized motor selection for elevator systems, ensuring efficiency and load handling.
- Conducted power and speed analysis for different motor types to meet system requirements.

Hydraulic Cylinder Design: Oct 2024

- Designed and simulated a hydraulic cylinder in SolidWorks, optimizing components for fluid dynamics, material durability, and performance under load conditions.

Exhaust Manifold Design

Sept 2024

- Created an exhaust manifold using SolidWorks for an internal combustion engine.
- Focused on optimizing flow dynamics and material selection to withstand high temperatures and pressures.

American Sign Language (ASL) Robot Arm

May 2024

- Designed and programmed a robotic arm to translate American Sign Language gestures into text, aimed at helping deaf people communicate more easily.
- Integrated sensors to recognize hand gestures and developed software to process and convert these gestures into corresponding text.
- Used SolidWorks for mechanical design and ensured precision and efficiency in gesture recognition.

Line-Tracker Car

Aug 2023

- Constructed and improved an autonomous vehicle capable of following a pre-defined path marked by a black line on a white surface.
- Integrated infrared sensors for line detection and used an Arduino Uno board to control the motors.
- Incorporated a Bluetooth module for remote control and monitoring, allowing the car to be operated via a mobile app.
- Engineered a vehicle with autonomous navigation using sensor-based inputs, incorporating Bluetooth for manual control to enhance user adaptability.

Interests

Mechanical Design , Robotics and Automation, Machine Learning and Data Science, 3D Printing and CAD Modeling, Renewable Energy and Sustainability, Automotive Engineering, Volunteering for Technology Education.

Languages

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- Arabic (mother tongue) English (B2: Upper Intermediate)