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Hazem Gamal Elbana

Senior Process Engineer

A Senior Process Engineer with experience in the automotive industry, I am poised to drive operational excellence and innovation in manufacturing processes. I am dedicated to optimising production flow, enhancing equipment utilization, and resolving complex challenges to ensure the highest standards of quality and efficiency. With a passion for robotics and automation, I am keenly interested in integrating innovative technologies to streamline operations and enhance productivity. I aim to leverage cross-functional collaboration and technical expertise to lead transformative initiatives that elevate performance and competitiveness in automotive manufacturing. I am committed to upholding industry-leading practices and standards while fostering a culture of continuous improvement and excellence.

Experience

2024 – PRESENT

Senior Process and Tooling Engineer /Ghabbour Auto GB, Egypt

As a Process Engineer, I conducted detailed manufacturing process analyses to optimise production flow and equipment usage. I managed the entire tooling lifecycle, collaborated with cross-functional teams to resolve complex manufacturing issues, and employed technical critical thinking skills to troubleshoot machinery problems and propose solutions. Key projects included optimising the JMC Pickup Frame Assembly Line, leading the Changan S35+ localization project, and implementing a follow-up strategy for the Tiggo Cross Beam. I also led the team in establishing a robust IATF and ISO 9001 documentation system to ensure compliance with international quality and safety standards.

JUNE 2021 – DESEMPER 2023

Process and Tooling Engineer /Ghabbour Auto GB, Egypt

I evaluated manufacturing processes, collaborated with vendors, and gathered operator feedback to enhance efficiency. I prepared analysis reports to identify trends and insights and designed printable welding and inspection fixtures, implementing 3D-printed prototypes. Additionally, I provided engineering support and innovative solutions for manufacturing challenges. Notable projects included leading the long wheelbase modification for the Fuso Canter Truck, implementing the Accent RB Welding station using lean and Six Sigma principles, and designing the JMC truck chassis welding station. I also developed the DIE spare parts and tools management system, crafted SOPs, and Work Instructions for factory products, and diagnosed product issues during assembly stages, devising practical solutions.

JUNE 2021 – DESEMPER 2023

Robotics Lab Engineer / British University in Egypt (BUE), Egypt

In my role, I researched the parameters of robotic applications and designed automated systems from inception to completion. I also created, implemented, and maintained 3D printers, PCB CNC, and laser engraving machines for educational purposes. Furthermore, I developed and implemented software to control robots, created prototypes, and worked on necessary components. I ensured complete documentation for robotic systems, monitored their use, and optimised functionality. Troubleshooting defects across various robot platforms was also a key responsibility, along with staying updated on advancements in robotics and relevant engineering fields. Additionally, I designed and manufactured several soft robotics end effectors for research and development purposes.

JULY 2018 – AUGUST 2018

Maintenance trainee / Juhayna food industry factory, Egypt

- Learning the operation and maintenance of the juice packing lines.
- Learning how machines like filling machines, straws, packaging, buffers, andconveyors work.
- Responsible for researching to enhance the straw machine efficiency by finding methods to predict the failure before it happens using a machine control system and rootcause analysis.

AUGUST 2018 – SEPTAMBER 2018

Maintenance trainee / Caterpillar Egypt., Egypt

- Learning the working principles of heavy equipment hydraulic systems.
- Learn how to follow company standards in receiving the equipment from customers, check the equipment and apply required maintenance.
- How to identify the failure in the equipment using thecomputer.
- How to check the engine using an oil contamination machine.

JULY 2017 – AUGUST 2017

Maintenance trainee / Egypt Air, Ground Service, Egypt

- Understanding the diesel engine components.
- Learn how to use the factory service manual to correct the service process.
- Learning how to use different machining processes to make the service with acceptedtolerance based on service manual standards.

Education

2014 - 2019

Bachelor of Engineering / British University in Egypt (BUE)

Mechanical Engineering Department | GPA (3.7 out of 4.0) - Distinction with Honours - 4th rank.

Validated by London South Bank University, UK - First Class Honours-

Graduation Research: "Investigation of soft robotic gripper for loading and unloading application "with complete design and control system. **Grade: 95%**

- Design soft actuator.
- Soft actuator fabrication.
- Soft actuator/gripper simulation.
- Evaluate the gripper, enhance the design, and control system.

Graduation Project: Design a full-scale, fully autonomous firefighting robot by applying artificial intelligence techniques. **Grade: 90%**

- Designed the robot body, firefighting system, and insulation system.
- Manufacture all robot components.
- Attach artificial intelligence control system to the robot.
- Control the robot with the unique build Android application.

Skills

- Manufacturing Process Optimization
- Project Management
- Lean Six Sigma Methodologies
- PLC and Microcontroller User
- Robotics Design and Maintenance
- Creation for the pre-kickoff project
- Negotiation.
- Cross-Functional Collaboration
- Technical Writing
- International Standards Compliance
- CNC Programming
- Product development
- Presentation Skills
- Active Excel User

Activities and Awards

- Member of BUE robotics Team, representing the BUE RoboGames Team and having 2 Gold, 2 Silver and 1 Bronze Medals in the RoboGames Competition in **San Francisco, USA, 2018**. Withthe following responsibilities: -
  - Design seven robots based on competition standards.
  - Find the best manufacturing techniques.
  - Attach control system.
  - Enhance the robot's efficiency after trials.
- Best Design Project of Mechanical Engineering 2019.
  - **Publication Title: -** A Novel Design of The Utilization of Soft Grippers in Loading and Unloading Applications. FEB 8, 2020,
- Member of BUE Electric Vehicle Rally team 2020.
- Certified Six Sigma Green Belt by Six Sigma Academy Amsterdam 2021
- BUE Electric Vehicle Rally "EVER IV" - Electric system Supervisor 2022.
- BUE Electric Vehicle "EVER V" – Team Supervisor 2024.

ENGINEERING SKILLS

- **Design: -** Excellent use of design software (e.g., SolidWorks, AutoCAD).
- **Simulation and design analysis: -** Good knowledge of using Finite Element Analysis software tocheck the design using Ansys and Abaqus.
- **Manufacturing process: -** High knowledge and background in the manufacturing process (e.g.,sheet metal, metal folding, casting, machining, and welding).
- **Computer Numerical Control (CNC): -** High experience in design, manufacture and programming CNC lathes and mills with 3 and 4 axes as well as 3D printing and Laser cutting;with high knowledge of tooling and machining various metals and polymers to tight tolerances using SolidWorks AutoCAD, Inventor, ArtCam and G-code software.
- **Pneumatic circuits:** good understanding of the pneumatic circuit design, components and howto operate it.
- **Technical writing: -** Expert in writing technical and progress reports using Microsoft Word.
- **Excel programs: -** Expert in using Microsoft Excel to make programs to solve differentengineering problems.
- **Presentation maker: -** Professional in making presentations using Microsoft PowerPoint.
- **Standardization: -** Applying international standards in design testing,

evaluation, andacceptance.

- **Controllers: -** I have a lot of experience with PLC controllers and microcontrollers like Arduino, Node MCU,and Raspberry Pi.
- **Programming: -** The ability to deal with different programming languages (e.g., Python, C, Mat-lab, PLC ladder diagram and Robot operating system (ROS)

Courses

- IATF 16949:2016 Lead Auditor Course **2024**
- PMP Certification Exam Prep Course 35 PDU Contact Hours/PDU **2023**
- Introduction To Power BI, an online course **2022**
- One Minute Manager Workshop, GB Auto Academy. **2022**
- Certified Six Sigma Green Belt by Six Sigma Academy Amsterdam **2021**
- Lean Management Certification Course, by Six Sigma Academy Amsterdam **2021**
- G-Code Programming for CNC Foundations Design program, By Gabriel Corbett **2021**
- Learn Industrial Automation, By Zahraa Khalil **2021**
- Learning PLC Ladder Logic, By Zahraa Khalil **2021**
- Raspberry Pi Essential Training, By: Mark Niemann-Ross **2020**
- Learning Arduino: Pulse Width Modulation **2020**
- Additive Manufacturing: Troubleshooting 3D Prints **2020**
- ROS for Beginners: Basics, Motion, and OpenCV **2019**
- Excel is an online course from Linda.com Academy **From 2015 to 2017**
- Solid works Online Course from Linda.com Academy **From 2015 to 2017**
- AutoCAD Online Course from Linda.com Academy. **From 2010 to 2016**
- English Course at Canadian Language Center (CLC) **2012**
- Advanced English course, Side by Side, Long Man, **2011**