YOUSSEF **ABOUSHIMY**

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Summary

Innovative Mechatronics and Automation Engineer, skilled in the design, development, and troubleshooting of complex projects. Experience includes integrating mechanical, electrical, and computer engineering principles to enhance automation processes. Strong analytical abilities and problem-solving skills contribute to optimizing operational efficiency. Successfully implemented technology solutions that resulted in improved productivity, and cost reduction across multiple professional and academic projects.

Skills & Interests

- Autodesk Inventor and SolidWorks
- PLC programming and ladder logic
- Machine vision systems
- Electrical schematics and systems
- Mechanical Design and FEA Analysis
- MATLAB model-based design
- Python programming
- System integration and troubleshooting
- Project leadership and team collaboration
- Technical documentation
- 2D and 3D modeling
- Design optimization and validation
- Rapid prototyping techniques
- Simulation tools: Simulink, ROS, CoppeliaSim
- Hardware-in-the-loop
- Linux Operating System

Experience

Controls Engineer **12/2023 to Current**
CSMI Engineering **Chicago, USA**

- Developed mechanical and electrical drawings, alongside PLC logic, for facilities nationwide.
- Programmed ladder logic and integrated machine vision systems to improve operational efficiency.
- Collaborated with Allen Bradley, Keyence, Cognex, and AVEVA platforms to meet project goals.
- Ensured compliance with industry regulations and safety standards throughout all project phases.

Testing Director **11/2021 to 10/2023**
ASU Formula Racing Team, Formula Student UK (IMechE) **Cairo, Egypt**

Oversaw testing, performance, safety, and technical guidance for sub-teams.

- Automated data collection and processing for testing using MATLAB and telemetry systems.
- Organized testing phases and risk assessment plans, increasing productivity by 20%.
- Analyzed vehicle-mounted DAQ data to improve dynamics setup for track lap times.
- Optimized suspension parameters, brake bias, aerodynamic elements, ECU mapping, and FDR.
- Led comprehensive scrutineering initiatives across all testing activities.
- Streamlined communication between technical sub-teams to enhance collaboration during testing.

Design Team Lead **01/2022 to 12/2022**
ASU Formula Racing Team, Formula Student UK (IMechE) **Cairo, Egypt**

- Directed team of 10 multidisciplinary members to validate sub-systems design for design event.
- Developed cost-per-point decision making strategies, winning 1st place in the FSUK23.
- Verified mechanical and MATLAB models to ensure the robustness of design across sub-systems.
- Achieved the highest team score from judges on the Engineering Design Report and spec sheet.

ICE Powertrain Member **01/2022 to 12/2022**
ASU Formula Racing Team, Formula Student UK (IMechE) **Cairo, Egypt**

- Engineered driveline system and gear-shifting mechanism, achieving 60% weight reduction and enhanced alignment adjustability.
- Utilized CAD software, working drawings, CNC, lathe, and waterjet for manufacturing processes.
- Developed compact scatter shield for safety using sheet metal design and CNC laser cutting

techniques.
- Performed mechanical FEA on driveline to verify durability against competition track conditions.

Intern **08/2020 to 10/2022**
Schneider Electric **Cairo, Egypt**

- Completed three summer internships, gaining diverse skills in industrial control and testing.
- Executed advanced ladder programming functions and timers for assembly and sorting line project using Unity XL and Factory IO.
- Developed and integrated a SCADA and HMI simulation project for water plant, linking it to ladder program.

Education

Bachelor of Science: **Industrial Mechatronics and Automation Engineering** **06/2023**
Ain Shams University Cairo, Egypt

- Graduation Project: Grade A+, Swarm of Autonomous Drones for Environment Mapping (SADEM)
- Graduation Project Awards: 2nd/183 teams in ICSC'23 International Competition; 2nd in IOT & AI Category, Ebdaa Festival; Won GP Fund from the Scientific Research Academy and ITIDA GP funding; Dell's “Envision the future” Competition Finalist. Over 15k USD in competition awards reinvested into the project.
- 3.22 GPA

Leadership Projects

- Designs for Packaging lines Automation Upgrades, Controls Engineer, 02/24, 08/24, Surveyed and Audited 9 packaging facilities in multiple states for measurements, machinery, electrical and piping layouts and schematics., Supervised and finalized all 9 sites drawings and with current layouts and future automation upgrades.
- Swarm of Autonomous Drones for Environment Mapping SADEM, Team Leader, 06/22, 07/23, R&D and prototyping of autonomous Linux based drones controlled by a base station with the objective of constructing a 3D model of indoor environments., Led integration of the project systems and autonomous features such as SLAM and peripheral features.
- Hybrid Control Rotary Inverted Pendulum, Team Leader, 11/22, 01/23, Model-based LQR controlled Rotary inverted pendulum., Integrated Mechanical, electrical and software to have a fully functioning inverted pendulum.
- Mini Production Line, Team Leader, 11/21, 02/22, Designed, simulated, & manufactured 5 automated stations production line., The project was fully simulated on MATLAB Simscape with physics and collision pkgs.

Languages

English:
Full Professional

Arabic:
Native/ Bilingual

Spanish:
Elementary

Portfolio

- https://youssef-aboushimy.framer.website/
- https://www.linkedin.com/in/youssefkhaledmo/