Ehab Eldeeb

Industrial Automation and Cyber Security (OT) Engineer

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Residency Address: Mokattam, Cairo, Egypt
Date of Birth: August 24, 1993
Marital Status: Married
Military Status: Exempted

Professional Summary

Experienced Industrial Automation and Cyber Security (OT) Engineer and Programmer with cyber security-first mindset with 9+ years of experience. Seeking opportunities to apply expertise in embedded and industrial control systems, programming, system design and cyber security in a dynamic professional setting.

Passionate Programming background with 16+ years of total experience.

Education

Bachelor of Science in Mechatronics Engineering (Very Good – 3.30 GPA)
Arab Academy for Science, Technology and Maritime Transport, Cairo, Egypt May 2016

Certifications

- FS Engineer (TÜV Rheinland), #22561/ 21, Safety Instrumented Systems
  - Valid until July 2026

Work Experience

Senior Control and Safety Systems Engineer (OT)

ZOHR Gas Field, Petrobel, Port Said, Egypt March 2023 – Present

- Design, configure, and maintain PLC, SCADA, and DCS systems across industrial facilities.
- Participate in designing and implementing Industrial Automation and Control Systems (IACS) (Oil and Gas Process).
- Conduct FAT and SAT activities for Integrated Control and Safety Systems (ICSS).
- Conduct troubleshooting and maintenance of instrumentation and control systems,
  DCS, Fire & Gas and Emergency Shutdown (ESD) Systems.
- Collaborate with cross-functional teams to optimize process efficiency.
- Expertise in Tri-Station (Triconex) and ArchestrA (Foxboro) logic implementation, tracing and troubleshooting.
- Lead the team of application engineers and cybersecurity engineers.
- Monitoring network and cyber security using NPM, IDS and NDR.
- Configuring switches for the DCS mesh network and Triconex net-2 network by using best practices for security hardening.
- Ensure network segmentation, firewall configurations, and secure remote access to OT systems.

Senior Fire & Gas Service Engineer

Academia Industrial Services, Alexandria, Egypt August 2022 – Present

- Channel Partner representative for MSA GM (2022 to 2024)
- Commissioning and troubleshooting of the following:
  - GM MSA Fire and Gas Detectors
  - MSA Gas Guard Control Panels
  - MSA Sentry IO Control Panels
  - Fire Alarm Panels (Honeywell and NOTIFIER) along with all related detectors (Smoke, Heat, Beam, IR, ...)
- Conducting operation and maintenance training sessions for the clients.

Senior Fire & Gas Engineer

ZOHR Gas Field, Petrobel, Port Said, Egypt June 2018 – June 2023

- Leading the ZOHR Fire & Gas Team, ensuring the whole plant is operating safely.
- Minimizing downtime to almost zero by following standard maintenance procedures.
- Maintenance planning and execution for all devices and systems.
- Preventive and Corrective Maintenance Follow up and personnel management.
- FGS Systems and FACP (Networked) troubleshooting and maintenance.
- Field Devices (Smoke, Heat, Fire and Gas Detectors) troubleshooting and maintenance
  (Dräger, Simtronics, Honeywell, Simplex)
- Programming and Revision of FACP/FGS logic (Triconex / Simplex / Honeywell)
- Emergency Response Team member.

Instructor / Tutor

Freelance 2016 – Present

- TÜV Functional Safety: Safety Instrumented Systems
  - Conducted 5-day training course covering all TÜV FS SIS to attendants from multiple companies
  - Covering the following topics:
    - Introduction to Functional Safety
    - Functional Safety Management (FSM)
    - Hazard and Risk Assessment (HRA)
    - Safety Requirements Specification (SRS)
    - SIS Hardware Design
    - SIS Application Program (AP)
    - SIS Security
    - Operation and Maintenance

- High school and university materials (National and International)
  - IGCSE Computer Science (Pseudocode, Flowcharts and Python)
  - Micro Controllers using AVR-C “Arduino” (Embedded Systems)
  - Assembly (MIPS)
  - C/C++
  - Java
  - HTML / CSS / JavaScript
  - PHP
  - Python
  - Networking Basics

- Modern Control Systems – DCS and SIS
    - Conducted 6 months intensive training course covering all aspects of modern control systems programming and troubleshooting
    - Covering the following topics:
        - PLC vs DCS vs SIS
        - Redundancy Concepts
        - DCS System Architecture
        - ArchestrA Software Environment
        - Hardware Components
        - Field Instrumentation Basics
        - Control Logic Fundamentals
        - Control Networks
        - Operator Interface and HMI
        - Data storage and visibility
        - Data Visualization
        - Alarm Management
        - OPC DA/HD and OPC UA
        - Triconex Software Environment
        - Triconex Hardware Components
        - System Integration
        - Commissioning, Maintenance and Troubleshooting
        - Access control and Security
        - Network Segregation

Programming

Freelance 2009 – Present

- Website / Web Applications Development 2009 – Present
    - Main Stack Expertise: Apache, MySQL, PHP, HTML, CSS, jQuery, APIs
    - Web Server management and troubleshooting (Apache)
    - Database design and implementation (MySQL)
    - Back-End application development (PHP)
    - API Design and Implementation (PHP, JavaScript, JSON)
    - API Integration with any third-party REST API (PHP)
    - Front-End application development (HTML, CSS, JavaScript)
    - Hosting Environment Management (Shared / VPS / Dedicated Servers)
    - E-Mail hosting, management, troubleshooting and deliverability monitoring
    - CDN and DNS Management
    - Odoo implementation and customization
    - WordPress implementation and customization
- Manage and Host Private Game Server (MapleStory) 2008 – 2010
    - Programming Languages: Java, JavaScript
    - Database design, implementation and management: MySQL
    - Preparing and managing windows hosting environment for the game and the associated website and community forum (Windows Server 2008)

Key Achievements

EcoStruxure (Schneider Electric Automation Suite)

- Extensive hands-on expertise with Foxboro (DCS), ArchestrA (IDE), InTouch (HMI) covering troubleshooting, modification, validation and enhancements.
- Successfully led multiple DCS system FAT and SAT activities for large-scale applications in ZOHR gas field.
- Day-0 and Day-1 installation of Control core software with software updates and configuration
- Software installation for GR, System Advisor, Historian, AMS Client and DCS Servers/Workstations
- Integration of CPs into GR
- Utilizing Virtualization technologies (Hyper-V, VMWare) as well as physical hardware installations
- Triconex integration into the ICSS Ecosystem

Triconex SIS (ESD System)

- Extensive hands-on expertise with Triconex (TriStation 1131), covering logic implementation, modification, troubleshooting, and validation for safety-critical systems (ESD, F&G, and process shutdown).
- Successfully led multiple Triconex system FAT and SAT activities for large-scale Oil & Gas automation projects, ensuring compliance with IEC 61511 and TÜV-certified safety standards.
- Optimized Triconex application logic to reduce false trips and downtime by over 30%, directly improving plant availability and operational safety.
- Delivered complex cause & effect logic implementations and ensured seamless integration with Foxboro DCS and ArchestrA platforms in the ZOHR Gas Field ICSS environment.
- Acted as the go-to technical lead for Triconex troubleshooting at ZOHR, resolving critical shutdowns in less than 1 hour instead of multiple hours, minimizing production loss.
- Provided training and mentorship for junior engineers in Triconex configuration, fault tracing, and cybersecurity-hardening techniques.
- Collaborated with cybersecurity engineers to implement OT security best practices on ICSS (Triconex and Foxboro) systems, enhancing resilience against modern cyber threats.

Programmable Logic Controllers (PLC) [Multi-Vendor]

- Siemens Step-7 300, 400, 1200, 1500 using SIMATIC Manager and TIA Portal including SAT activities, troubleshooting, modifications and integration with DCS.
- Modicon using Unity Pro including troubleshooting and integration with Triconex.
- Other systems integration and Modbus communication with DCS.

Courses

- Autodesk Fusion 360 – Autodesk
- Triconex Basic / Advanced – Schneider Electric
- Foxboro ArchestrA Basic / Advanced – Schneider Electric
- Allen Bradley RSLogix5000, with Factory Talk – Elsewedy Automation
- Siemens Simatic Step 7 with HMI and CFC, Programming and Service – MISC
- Siemens Simatic Step 7 and TIA Portal – Siemens Egypt
- HIMAX (SiLWorX) – HIMA Middle East FZE
- OT Cybersecurity IEC62443 Standard and best practices

Academic Activities

- **Graduation Project:** May 2016
  Vision-based autonomous unmanned ground vehicle, using image processing
  - MATLAB
  - Arduino
  - Raspberry Pi
  - UDP Communication (Protocol and Implementation) between devices
- **Mini-Projects:** 2011 - 2016
  - Sumo Robot
  - Smart Home
  - Minesweeper
  - Motor Speed Control
  - Temperature Measurement
  - Smart Irrigation System
  - Robot Wireless Control via Smartphone
- Autodesk Fusion 360 Training Course – May 2016
- Modelling and Engineering Drawing Software:
  - Autodesk AutoCAD (2D)
  - Autodesk Inventor (3D)
- RobEn AAST – Vice President – June 2015 to January 2016
- RobEn AAST – Head of IT & Media - June 2014 to June 2015
- RobEn AAST – Embedded Systems Operations Member – March 2014 to June 2014
- Google – Power Searching Program with google – October 2012
- Petrobel – Training Program – August 2012 to September 2012
  - Car Engines Mechanism Overview in the company's garage
  - LPG Station
  - Power Station (Power Plant)
  - Power Turbines

Skills

- **Professional user of Microsoft Office Suite**
- **Easily Familiar with any new program/technology**
- **Fast learning of new technologies**
- **Planning and Scheduling**
    - Making annual preventive / corrective maintenance plans considering time and load distribution, including material management and workforce
- **PLC/DCS Programming**
    - Simatic Step7 (Siemens)
    - Allen Bradley RSLogix5000 (Rockwell Automation)
    - Triconex (Schneider Electric)
    - Foxboro DCS (Schneider Electric)
    - SILworX (HIMA)
- **FACP Programming**
    - Simplex ES Panel Programmer 4100
    - VeriFire Tools (Honeywell NOTIFIER)
- **General Purpose Programming**
    - C, C++, C#, Python, PHP, JavaScript, Java, HTML, CSS, MySQL
- **Cyber Security in mind**
    - Cyber Security best practices are crucial for any application development including industrial systems (IACS)
- **Network design and operations**
    - Network topologies and protocols
    - Network infrastructure design and implementation
- **System Administration**
    - Expertise in Microsoft Ecosystem
- **Using SAP to plan and execute maintenance tasks**
    - PM and MM modules (Plant Maintenance and Material Management)

Languages

- Arabic – Mother tongue
- English – Excellent, Fluent Speaking
- French – Basic
