

Adrian Bredean

Industrial Automation Consultant | Senior Automation Engineer | PLC Software Architect

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Professional Summary

Senior industrial automation consultant and automation engineer with extensive experience in PLC software development, automation architecture, robotics integration, and commissioning of complex industrial systems. Specialized in Structured Text programming, modular automation architectures based on ISA-88 and PackML principles, and scalable software design focused on long-term maintainability, standardization, and engineering efficiency.

Experienced with Siemens TIA Portal, Beckhoff TwinCAT, Codesys, and B&R Automation Studio, as well as ABB robots and RAPID programming for robot control and integration within automated production systems. Strong background in industrial communication technologies including Profinet, Profibus, EtherCAT, Modbus TCP/RTU, Ethernet/IP, OPC UA, and MQTT.

Proven track record in defining automation architecture, improving engineering standards and workflows, refactoring legacy systems, and delivering production-ready control solutions from concept through FAT, commissioning, site acceptance, and operational handover. Combines hands-on engineering capability with structured system-level thinking, technical leadership, and a strong focus on maintainable automation frameworks.

Consulting Capabilities

- Automation architecture design and system-level engineering
- PLC software standardization and engineering workflow definition
- Commissioning leadership, FAT/SAT execution, and technical troubleshooting
- Legacy system modernization and software refactoring
- Technical audits and automation performance optimization

Areas of Expertise

- PLC Programming (Structured Text / IEC 61131-3)
- Automation Architecture & Modular Design (ISA-88, PackML)
- Commissioning & System Startup (FAT / SAT)

- Automation Standardization & Engineering Workflows
- Industrial Robotics & Robot Integration
- ABB Robot Programming (RAPID)
- Welding Robot Automation
- Software Architecture for Industrial Systems
- Functional Design Specifications (FDS) & Control Narratives
- Troubleshooting, Root Cause Analysis & System Optimization
- Legacy Code Refactoring & Improved Maintainability
- Industrial Communication & System Integration
- Agile Engineering & Technical Leadership
- Technical Documentation & Engineering Best Practices

Professional Experience

Founder & Automation Engineer | A2 Industrial Automation | Jan 2026 – Present

Hands-on industrial automation consulting focused on PLC programming, commissioning support, troubleshooting, and improvement of automation architecture and engineering workflows.

- Develop PLC software in Structured Text for industrial automation applications
- Support commissioning and on-site troubleshooting activities
- Refactor legacy automation systems to improve scalability and maintainability
- Improve engineering workflows, technical structure, and documentation quality
- Provide practical automation consulting combining architecture and execution

Selected Projects

Aqua Park Buzău | Automation Engineer / Project Lead

Siemens S7-1200 | TIA Portal V20

Full responsibility for the automation scope of the project, covering engineering, architecture, software development and commissioning.

- Defined the control architecture and software structure.
- Advised the customer on electrical drawings, component selection and technical implementation.
- Developed and implemented the complete PLC software.
- Performed testing, commissioning and system start-up.
- Acted as the technical point of contact for automation-related matters throughout the project.

Cremer Special Equipment BV – Lisse | Automation Engineer

Development of the control logic for a dedicated conveyor system integrated into a globally used pill-counting machine.

- Designed and developed conveyor control logic around the machine's specific functional requirements.
- Translated functional requirements into reliable and deterministic PLC functionality.
- Optimized the control system with a strong focus on **speed, reliability and repeatable operation**.
- Integrated the conveyor control with the existing machine control system.
- Resolved technical issues during development and system integration.

Philips Nederland – Eindhoven | Automation / Commissioning Engineer

Commissioning activities within the **Innovation Engineering** team for an automated production environment for the Philips **OneBlade**.

- Commissioning and start-up of production robots and an automated welding line.
- Testing and validation of PLC, robot and machine functionality.
- Troubleshooting and optimization during commissioning and production start-up.
- Working closely with engineering and production teams to bring equipment into production.
- Supporting the transition from engineering to stable production operation.

Career Break | Sep 2025 – Jan 2026

Planned career break focused on technical development, personal projects, and preparation for independent consulting activities.

Senior Software Engineer | KRANENDONK Smart Robotics | Mar 2024 – Sep 2025

- Defined PLC coding standards and automation architecture guidelines
- Led automation standardization initiatives based on ISA-88 and PackML principles
- Developed modular automation frameworks to improve software reuse and maintainability
- Commissioned systems from FAT through site acceptance
- Contributed to structured engineering practices in robotics-driven industrial projects

Senior Software Engineer | Alfa Laval | Feb 2022 – Mar 2024

- Coordinated software development activities in alignment with project management
- Designed modular automation architectures using object-oriented design principles
- Developed ISA-88-based automation structures together with process engineering teams
- Prepared and verified Functional Design Specifications (FDS)
- Acted as Scrum Master and Sprint Planner within Agile engineering teams

Software Engineer / Tool Owner | Alfa Laval | Sep 2018 – Feb 2022

- Developed automation software for scrubber systems
- Created and maintained software standards and engineering structure
- Supported change management and future product development
- Delivered internal training on software architecture and engineering practices

Controls Engineer / Software Engineer | KRANENDONK Smart Robotics | May 2017 – Sep 2018

- Developed PLC software for welding robot systems
- Implemented safety concepts in line with machine safety requirements
- Performed on-site commissioning and technical support
- Worked on integration between PLC control and robotic systems

Robot Support Engineer | KRANENDONK Smart Robotics | Sep 2015 – May 2017

- Troubleshoot robotic installations across electrical, mechanical, and software domains
- Supported robot software optimization and system reliability improvements
- Delivered customer support and technical training
- Worked with industrial robotic applications including ABB-based environments

Field Services Engineer | Kaba Nederland BV | Feb 2011 – Sep 2015

- Performed commissioning and maintenance of access control systems
- Carried out software configuration and remote technical support
- Supported customers with service interventions and operational continuity

Technical Skills

PLC Platforms

Siemens SIMATIC (TIA Portal), Beckhoff TwinCAT, Codesys, B&R Automation Studio

Robotics

ABB robots, RAPID programming, robot integration within industrial automation systems

Programming

Structured Text (ST), Ladder Logic (LD), Function Block Diagram (FBD), RAPID, Python

Industrial Communication

Profinet, Profibus, EtherCAT, Modbus TCP/RTU, Ethernet/IP, OPC UA, MQTT

HMI / SCADA

WinCC, Beijer iX HMI

Standards & Methodologies

ISA-88, PackML, IEC 61131-3, CE Machine Directive, Functional Safety (PL/SIL)

Engineering Practices

Version Control (Git/SVN), FAT/SAT execution, EPLAN interpretation, control panel testing

Education

Master's Degree – Efficient Use of Electrical Energy and Renewable Sources

University Dunarea De Jos, Galati | 2009 – 2011

Bachelor's Degree – Applied Electronics

University Dunarea De Jos, Galati | 2005 – 2009

Certificates

SIMATIC S7 Service Training in TIA Portal

Siemens Training Netherlands | 2026

Languages

English — C1 (Fluent)

Romanian — Native

Dutch — B2 (Advanced Intermediate, progressing toward C1)