

Juan Ignacio Martinez

Senior Industrial Automation & AI/Robotics Engineer — Rosario, Santa Fe, Argentina

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PROFESSIONAL SUMMARY

Senior Industrial Automation and AI/Robotics engineer with 20+ years delivering PLC/SCADA, computer vision, industrial robotics, and IT/OT solutions across manufacturing, pharma, steel, food, automotive, and ceramics. Deep expertise in Siemens, Rockwell/Allen-Bradley, Schneider, Omron, OpenCV, YOLO, PyTorch, ROS/ROS2, KUKA, FANUC, RoboDK, and edge computing on Linux/QNX. Cisco CCNA certified with full-stack industrial protocol knowledge (OPC-UA, Modbus, MQTT, Profinet, EtherNet/IP). Proven technical leader of multinational projects across Argentina, Italy, Russia, Poland, and Taiwan, including robot cells, digital twins, and Level 1/Level 2 integrations.

KEY ACHIEVEMENTS

- Led development of WebXVR-based immersive industrial HMI on Meta Quest 3 — real-time PTZ camera head-tracking for Industry 5.0 spatial interfaces, establishing a first-mover capability in industrial extended reality
- Programmed and deployed PLCs across 5 manufacturers (Siemens, Rockwell, Allen Bradley, Schneider, Omron) with field startups across 4 continents over 20 years
- Designed and deployed AI vision inspection systems (OpenCV, YOLO, PyTorch) for industrial quality control and pharmaceutical packaging inspection
- Led Level 1/Level 2 integration for a Thermo Fisher analytic 6-axis FANUC robot at Ternium, coordinating electrical/pneumatic installation, startup, network/protocol programming, and QNX integration
- Delivered Level 2 plant IT/OT integration at Ternium steel — C/C++ SCADA on QNX RTOS with industrial Ethernet and plant-wide database architecture
- Developed KUKA/RoboDK digital-twin workflows for YPF/Antares, connecting robot simulation, Python tooling, and real production deployment

CORE COMPETENCIES

Industrial Control	Siemens S7-300/400/1200/1500 (TIA Portal, Step 7, WinCC), Rockwell Control/Guard Logix, Allen Bradley, Schneider, Omron CJ/CQM, SCADA, HMI, Ladder Logic, Structured Text, FBD
Artificial Intelligence & Computer Vision	OpenCV, YOLO (detection and segmentation), PyTorch, Ultralytics, Transformers, OCR, Tracking, Pose Estimation, 3D Vision, Metrology, AI model training, edge AI inference, data mining
Robotics	KUKA, FANUC, RoboDK, ROS / ROS2, MoveIt, RealSense, LIDAR, robot palletizers, 6-axis robot cells, vision-robot coordination, digital twins
XR & Industry 5.0	WebXVR, Meta Quest 3, WebXR Emulator Extension, VR industrial HMIs, immersive control interfaces
Software Engineering	Python (FastAPI, Flask, NiceGUI, Streamlit), C, C++, Bash, Linux, Docker, CUDA, GPU computing, modular architecture, microservices, APIs, SQL databases
Operating Systems & Embedded	Linux administration, QNX POSIX RTOS, OS virtualization, embedded electronics, drivers
Industrial Protocols	OPC-UA, Modbus, MQTT, Profinet, Profibus, EtherNet/IP, ControlNet, industrial Ethernet, fieldbuses
Networking	Cisco CCNA (routing, switching, TCP/IP), PC/PLC networking, plant-wide communication infrastructure
Data & Cloud	Data acquisition, data pipelines, edge computing, web/cloud services, data mining
Leadership	Technical project lead, field team coordination, startup management (greenfield and brownfield), multinational team leadership, mentoring, technical training

PROFESSIONAL EXPERIENCE

Antares Technologies Srl — Automation Specialist

Aug 2022 – Present (4 yrs) | Rosario, Santa Fe, Argentina

- Led development of WebXVR-based immersive industrial HMI on Meta Quest 3 — designed real-time PTZ camera head-tracking system with edge computing pipelines for Industry 5.0 spatial interfaces
- Designed and deployed AI vision inspection systems (OpenCV, YOLO, PyTorch) for industrial quality control and defect detection on production lines
- Trained and integrated AI/ML models into production automation pipelines for real-time edge inference using Python and FastAPI
- Programmed robot integration and embedded systems for Industry 4.0 environments, including KUKA/RoboDK digital twin workflows, Python tooling, and coordination between simulation and production deployment
- Managed industrial networks and cross-layer communication protocols (OPC-UA, Modbus, MQTT, Profinet) for interconnected plant infrastructure
- Built data pipelines, data mining systems, and web/cloud services for production monitoring and analytics

AFG Ingeniería S.R.L. — Software Developer

Sep 2019 – Aug 2022 (3 yrs) | Argentina

- Programmed and deployed PLC automation on Siemens S7-1500 (TIA Portal, Step 7) and Rockwell Control Logix / Guard Logix platforms
- Integrated industrial robots and embedded systems with OS virtualization for production environments, reinforcing multi-vendor robot cell deployment and commissioning
- Developed database administration systems and industrial communication protocol configuration
- Commissioned field deployments with multi-vendor hardware integration across multiple factory sites

Air Liquide — Instrument & Control Supervisor

Feb 2018 – Sep 2019 (1 yr 8 mo) | Argentina

- Supervised automation and control systems for industrial gas production facilities ensuring 24/7 production uptime
- Instructed field service teams on safe work procedures, task planning, and PLC support
- Led field teams maintaining site-wide control infrastructure and instrumentation protocols

Proyección Electroluz S.R.L. — Automation Specialist

2016 – Aug 2018 (2 yrs) | Reconquista, Argentina

- Managed greenfield and brownfield automation startups from initial commissioning through production launch
- Programmed machinery and robot-related automation on Siemens S7-300/400/1200/1500 (TIA Portal, Step 7) with Profinet and Profibus industrial networks
- Supervised startup teams and provided automation consulting across multiple project sites
- Developed PLC control system for a 544-position intelligent cold storage transelevador (stacker crane) at Tutto Porkys — programmed Siemens S7-1516-3 PN/DP with OPC-TwinCAT integration for automatic load/unload/exchange operations, galibo-checking, and integrated refrigeration cycle control

Ternium — Project Leader / Level 2 & Level 1 Programmer

Jan 2013 – Aug 2016 (3 yrs 8 mo) | Argentina

Level 2 (Plant IT/OT):

- Developed C/C++ SCADA applications on QNX POSIX RTOS for real-time steel production monitoring and control
- Architected database systems, data acquisition pipelines, and industrial Ethernet networks for plant-wide data integration
- Automated operating system-level processes for continuous 24/7 production environments

Level 1 (Floor Control):

- Programmed PLCs on Siemens S7-300/400/1200/1500 (TIA Portal, Step 7, WinCC), Allen Bradley, and Schneider platforms
- Led Level 1 automation support for Thermo Fisher analytic 6-axis FANUC robot cell at Ternium Siderar, coordinating electrical/pneumatic installation, OEM field service, startup supervision, and safety interfaces
- Managed field support and startup operations for production lines
- Configured field-level industrial communication protocols (Profinet, Profibus, EtherNet/IP)

MTA S.R.L. — Automation Project Leader

Aug 2010 – Dec 2012 (2 yrs 5 mo) | Buenos Aires, Argentina

Siemens Solution Provider.

- Led technical teams for PLC and HMI software design and support across multiple client sites
- Developed WinCC applications with C programming extensions for advanced SCADA functionality
- Supervised field mount installations, technical documentation, and startup management

LIXIS S.A. — Field Service & Programmer

May 2010 – Apr 2011 (1 yr) | Buenos Aires, Argentina

Pharmaceutical Vision Control Systems.

- Installed and supported vision inspection systems for pharmaceutical quality control and pack-and-tracking
- Programmed PLCs on Allen Bradley / Rockwell platforms for integrated vision and automation workflows
- Deployed multi-site solutions as traveling field service technician

Metfree — PLC Programmer & Networker

Apr 2011 – Aug 2011 (5 mo) | Buenos Aires, Argentina

- Programmed packing machines, robot palletizers, and transport systems on Siemens S7-300/400/1200/1500 (TIA Portal)
- Configured industrial networks for production line connectivity

EUROELETTRA SISTEMI S.P.A. — Transfer Engineer / Electronic Programmer

Feb 2006 – Jun 2009 (3 yr 5 mo) | Marmirolo (RE), Italy

- Programmed PLCs and HMIs (Omron CQM1H, CPM1A, CJ1M) for automated ceramics plants
- Led startup, installation, and support projects across Poland (Stargres), Russia (Marazzi), Taiwan (White Horse), Argentina (ILVA), and Italy (Casalgrande Padana, Italgraniti Nordica, Bluemix, Coop Imola, Keope)
- Delivered end-to-end automation from electrical installation through PLC programming to production startup

Fast Automation Srl — Transfer Engineer / Electronic Programmer

Apr 2007 – May 2007 (2 mo)

- Executed technology transfer from Italy to Argentina for Ceramica ILVA
- Provided PC/PLC networking support and automation maintenance

KEY PROJECTS

Automated Cold Storage Warehouse – *Tutto Porkys S.A. / Crosetto Ingeniería*

Siemens S7-1516-3 PN/DP, TIA Portal, OPC, TwinCAT, Profinet / Sr. PLC Programmer

transelevador monocolumna control system for a 544-position intelligent frozen storage warehouse with automatic load/unload/exchange operations, galibo checking, and integrated cooling system control

VR Industrial HMI – *Antares Technologies*

WebXVR, Meta Quest 3, Linux, PTZ camera, edge computing / Lead developer

real-time head-tracking camera control for Industry 5.0 spatial interfaces

AI Vision Inspection – *Antares Technologies*

OpenCV, YOLO, PyTorch, Python, edge inference / AI engineer

automated defect detection and quality control system

Pharmaceutical Vision Control – *LIXIS S.A.*

Vision cameras, Allen Bradley PLC, pack-and-tracking / Field engineer

quality inspection systems for pharmaceutical packaging

Ternium / Thermo Fisher Analytic Robot – *FANUC Robotics*

FANUC 6-axis robot, QNX, Level 1/2, industrial networking / Project Lead

analytic robot cell integration covering automation support, electrical/pneumatic coordination, OEM startup, protocol programming, and OS integration

Steel Plant Automation – *Ternium*

QNX RTOS, C/C++, SCADA, Siemens S7, Rockwell / Level 2 programmer

plant IT/OT and Level 1 floor automation for 3+ years

Ceramics Plant Startups – *EUROELETTRA*

Omron CJ/CQM, HMI, industrial networks / Lead engineer

multi-country technology transfers across 4 continents

YPF / Antares KUKA Digital Twin

KUKA, RoboDK, Python, simulation, Industry 4.0 / Robotics engineer

digital twin taken from simulation tests into a real production environment, validating RoboDK performance and external 3D model integration

Bin Picking & Robot Guidance

ROS/ROS2, MoveIt, RealSense, YOLO / Robotics engineer

robotic picking and robot guidance concepts based on computer vision

Industrial Digitalization

OPC-UA, dashboards, edge computing, data acquisition / Systems integrator

plant floor data collection and visualization

EDUCATION

Instituto Universitario Aeronáutico

2007 – 2009

Electronic Engineering (incomplete)

Cisco Networking Academy

2000 – 2002

CCNA — Cisco Certified Network Associate

Universidad Nacional de Rosario

2001

C++ Programming Introduction

CERTIFICATIONS

Cisco CCNA

Routing & Switching, TCP/IP, industrial networking

LANGUAGES

Spanish

Native / Bilingual

English

Full Professional

Italian

Full Professional

SELECTED PROJECT GEOGRAPHY

Argentina · Brazil · Colombia · Mexico · Paraguay · Uruguay · Italy · Poland · Russia · Taiwan — automation startups, AI vision deployments, industrial network rollouts, and technology transfers across the Americas and Europe.

INDUSTRY ENGAGEMENT

Technical content on industrial automation, AI vision, and extended reality reaches 1,000+ followers on LinkedIn. Recognized by Antares Technologies as lead developer of WebXVR-based immersive HMI for Industry 5.0. Key publications on spatial control interfaces and vision systems have received 30+ reactions and company-wide acknowledgment as a technical innovator.