RAILAB

COMPANY PROFILE

Italian bespoke studio

of robotics and applied artificial intelligence

2026

CERTIFIED ISO 9001

Certification ISO 9001
"Consulting in the field of information technology and automation." IAF:33,35
Railab Management System is certified UNI EN ISO 9001:2015.

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Railab Srl — Company Profile

Who we are

Railab Srl is an Italian bespoke studio of robotics and applied AI, founded in Brescia in 2018. We design software-intensive robotic skills that go into production on global catalog platforms, with a **team that has been working in robotics and industrial automation for over 25 years**. Four Japanese patents with the Railab team listed as inventor. We typically work in cases where a catalog product does not solve the problem and a technical partner capable of designing the end-to-end solution is required.

We operate as a senior, highly qualified team, deliberately small, built on trust and long-term relationships with a portfolio of clients, kept restricted by design.

Headquarters: Via Quinzano 23A, 25020 Flero (Brescia), Italy
Certifications: ISO 9001:2015 (Bureau Veritas, certificate IT338195, valid through December 2027)
Membership: SIRI — Italian Association of Robotics and Automation

How we work

We work as **specialized tailors**, not as a volume shop. Our model is not to acquire as many clients as possible, but to maintain a small portfolio of clients whose medium-to-long-term strategy we know deeply enough to solve specific requests and anticipate the needs that follow — often proposing technological solutions before the client has formulated them.

This is not a marketing posture. It is a business model. It means we are selective on the engagements we accept, to preserve the depth of attention we owe to the clients who have placed their trust in us. It also means that, when we engage, we do so for the long term — typically across multiple project generations within the same client.

> **The value we bring is the skill we have built, not the bill of materials.**

We do not resell hardware. We are not a generic software house. We design, prototype and bring into production software-intensive robotic skills.

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Team background

Dr. Fabio Tampalini — Founder & CEO

- Senior Member IEEE
- Ph.D. in Information Engineering
- 25+ years in industrial automation and robotics
- Inventor on 4 patents
- 2014–2017 — Senior Technical Manager (CTO) for Automation, IT & Quality at APM Terminals Vado Ligure (Maersk Group), during the construction phase of the automated terminal; part of the global APMT team for automated container terminals
- 2018–2024 — 6 years on the Board of Directors of Zivid (Oslo, Norway), one of the global references for industrial 3D vision
- Adjunct Professor of Robotics at the University of Brescia since 2018
- Amateur radio operator IU2SNX, member of ARI-RE Civil Protection since 2024

Dr. Luca Lattanzi — COO & Senior Software Engineer

- Ph.D. in Industrial Engineering
- 20 years in automation
- Inventor on 2 patents
- Expert in motion control and firmware development
- Lead implementation of distributed and real-time systems
- ING-INF/05 Subject Expert at UniBS and tutor for the robotics course
- Amateur radio operator IU2TZK, head of ARI-RE Civil Protection for Brescia since 2024

Kevin Palmerini, M.Eng. — Quality & Post-Sales Manager

- Master's degree in Information Engineering
- Inventor on 2 patents
- Expert in applied AI and machine vision
- Implementation of AI, computer vision, embedded integration
- Amateur radio operator IU2WVN

Commercial history

Railab's historical clients include DENSO Wave (Japan) and Yamazaki Mazak (Japan).

The collaboration with **DENSO Wave** produced more than 30 projects, with access to internal engineering teams, reciprocal residencies between Italy and Japan, and the management of tri-lateral projects with industrial mechatronics partners when the projects required it.

For **Yamazaki Mazak** (Japanese machine tool group) Railab has developed more than 10 projects in the domains of industrial robotics, simulation, applied AI and intelligent trajectory generation.

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What we do

Three operating domains, with a deliberate balance between industrial and civil applications:

1. Industrial robotics and collaborative automation

Custom robotic applications on collaborative and industrial platforms. Development of skills (bending, press brake, assembly guidance, pick-and-place, palletizing, inspection). Machine vision and process integration. Advanced-but-simple graphic programming with automatic path planning and collision avoidance — technologies we have been applying for years, before they became mainstream in the industry.

2. Applied AI and predictive systems

Computer vision, predictive maintenance, anomaly detection, digital twin and AR/VR, sensor fusion, imitation learning. We apply AI where it delivers measurable value, not as a label.

3. RF, IoT and mission-critical communications

RTLS/UWB tracking systems for industrial operations. LoRa mesh networks for emergency communications or for areas where cellular coverage is not guaranteed. Embedded firmware and custom hardware integration whenever off-the-shelf products do not meet requirements.

Selected work

Five projects that illustrate the kind of problem we solve.

Blockly graphic programming for cobots — Direct Teaching

Blockly-based graphic interface for programming DENSO collaborative robots. Developed in collaboration with the DENSO Wave Japan team between 2021 and 2023. Validation with dedicated metrics: teaching accuracy ≤ 0.1 mm, 50% reduction in teaching time compared to the standard teach pendant, dedicated System Usability Scale (SUS) evaluation.

> Today this interface is installed on the teach pendant of the **DENSO Wave COBOTTA PRO** cobot, distributed worldwide.
> Public reference: denso-wave.com/en/robot/ex/cobottapro.html

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QR code-based automatic robot-camera calibration system

A system that enables an industrial robot to work with sub-millimeter precision even when the environment changes (objects shifting, minor impacts, drift over time): simply apply a QR code to the object or workstation, and the robot self-corrects. The system uses a single 2D camera — no expensive vision hardware required — and runs natively in the robot controller, with no need for external PCs. Presented live at iREX 2023 in Tokyo within the DENSO Wave multi-robot demo with autonomous mobile systems.

> Japanese patents **JP2025051953A** and **JP2025056491A** — Position correction device, position correction method, and marker for position correction. Railab is the only entity authorized, together with DENSO Wave, to distribute solutions based on these patents.

3D pose recognition from a single 2D camera

A solution that enables the recognition of 3D position and orientation of objects using a single 2D camera — instead of the dedicated 3D vision systems that cost significantly more. Useful for guiding a robot to handle parts arriving in variable position and orientation (e.g., components on a conveyor belt, objects in bins, parts on pallets). Integrated with the Beckhoff TwinCAT3 Vision Neural Network industrial stack. Presented at the DENSO Wave booth during iREX 2023 in Tokyo.

Palletizing Builder + WINCAPS Plus integration

Automatic programming system for palletizing and de-palletizing processes, integrated as a **WINCAPS Plus** application (the DENSO Wave software suite). Traditionally, programming a palletizing sequence requires hours of manual work: this system generates it automatically from pallet and part dimensions. Available on DENSO 5/6-axis VL series robots.

> Public reference (**DENSO Wave VL2500** product): denso-wave.com/en/robot/product/five-six/VL2500.html

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Unity Digital Twin for multi-arm robotic systems

Unity Engine-based digital twin system to simulate and monitor multi-arm robotic lines in real time. It allows new configurations and work sequences to be tested in the virtual environment before physical deployment, reducing setup time and line risks. Distinctive feature: the digital twin is connected directly to the physical DENSO robot controller, so simulation and reality remain synchronized. Presented at the DENSO Wave booth during **iREX 2023** in Tokyo.

> Public reference (official DENSO Wave booth video, iREX 2023):
> youtu.be/m6oDN8cFDIM

> **Note on the DENSO Wave booth at iREX 2023:** the booth featured around thirty demos in total, developed by DENSO internal divisions and global technical partners. Five of those demos were developed by Railab.

Technical positioning

Railab has remained independent by choice. We are an Italian bespoke studio of robotics and applied AI — senior enough to take on technically ambitious projects end-to-end, and for this reason deliberately compact, directly accountable to the client. The value we bring is the skill we have built, not the bill of materials. This positioning is consistent with the direction the robotics market is moving in: skills as exportable intellectual property, deployable on different platforms.

Our current technical focus:

- **Vision-based robotic skills** — where the future of industrial automation is heading, on both collaborative and traditional platforms, fixed or mobile
- **Digital twin and real-time simulation** — Unity, multi-arm kinematic modeling, direct integration between virtual environments and physical robot controllers
- **Software integration of industrial technologies** — Beckhoff TwinCAT3, industrial PLCs, SCADA systems, vision libraries, ROS2 middleware
- **Fleet-level architectures and skill libraries** — preparation for the next generation of industrial deployment

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Why this matters today

The robotics market is entering a phase in which competitive advantage increasingly rests on software. Three trends, confirmed by the IFR World Robotics 2025 Report, define the direction:

1. **Global demand is vast and growing.** In 2024, 542,000 industrial robots were installed worldwide, with China accounting for 54% of installations and over 2 million units of operational stock. The world's robot base has never been larger — and every installed unit is a platform that calls for application software to express its value.

2. **Value is moving to the software that runs on top of the hardware.** Robotic hardware is mature and increasingly accessible. It is the software layer — vision, applied AI, vertical skills — that today sets a solution apart and makes it competitive. For a robot manufacturer, this is where a platform becomes more compelling to the end customer: not by replacing the hardware, but by enhancing it with application expertise that is rarely worth developing in-house.

3. **The independent specialists able to build that layer are rare.** The European mid-market of specialized robotic partners has thinned through the M&A consolidation of recent years. Few studios remain with deep technical expertise and independence — able to work on top of any catalog platform, alongside the manufacturer.

In this scenario, an independent and specialized engineering partner — four Japanese patents with the team as inventor, an ISO 9001 quality structure, consolidated industrial relationships — does not compete with those who build robots: it multiplies their value. It is the ally that turns a catalog platform into a solution the end customer cannot find elsewhere.

Credentials

- **Patents** — 4 Japanese patents (JP2021094646A, JP2021094647A, JP2025051953A, JP2025056491A) with the Railab team listed as inventor
- **ISO 9001:2015** — Bureau Veritas certificate IT338195, valid through December 2027
- **SIRI Membership** — Italian Association of Robotics and Automation
- **DENSO Wave Incorporated Golden Partner** — certified 2024
- **iREX Tokyo** — presence at the 2017, 2019 and 2023 editions

Our values

- **Integrity** — we say what we know and we say what we don't know
- **Passion** — we accept the projects we believe in and bring them to the level of finish they deserve
- **Audacity** — when a problem is declared unsolvable, we treat it as a starting point

Contacts

- **Company name**: Railab Srl
- **VAT / Tax code**: IT03984120984
- **Registered office**: Via Ferrata 2, 25123 Brescia, Italy
- **Operational office**: Via Quinzano 23A, 25020 Flero (BS), Italy
- **Year of foundation**: 2018
- **Web**: railab.com
- **Institutional contact**: info@railab.com

Public references

- **Official Railab website** — railab.com
- **DENSO Wave Golden Partner certificate** — railab.com/assets/pdf/DNWA-cert.pdf
- **Patents** — searchable on JPO using the codes listed above
- **DENSO Wave COBOTTA PRO** (TP Blockly by Railab) — denso-wave.com/en/robot/ex/cobottapro.html
- **DENSO Wave VL2500** (Palletizing Builder) — denso-wave.com/en/robot/product/five-six/VL2500.html
- **iREX 2023 DENSO Wave booth** (official video) — youtu.be/m6oDN8cFDIM
- **Market data** — IFR World Robotics 2025 Report (International Federation of Robotics, September 2025)

Document for direct professional exchange with clients and partners. For a more detailed technical briefing on specific capabilities, recent projects or technology roadmap, please request it explicitly.