

## Industry Corner

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In this “Industry Corner” column, we interview Francesco Ferro, the CEO, co-founder, and owner of PAL Robotics. With more than two decades of experience in both industrial and research fields, Francesco has led the company from its early beginnings to becoming an established contributor in the European robotics landscape. Under his leadership, PAL Robotics operates with one core mission: to develop service robots that enhance people’s quality of life. See his full biography at the end of this interview.

### **1. Could you tell us about your professional journey - from your early work in software and robotics to co-founding and leading PAL Robotics - and how your vision for robotics has evolved over the past two decades?**

I studied telecommunications engineering at the Politecnico di Torino, then did a PhD in computer vision. I wanted to work with something physical rather than stay purely in software. In 2004, together with a colleague from Torino, we got our first commercial commitment: a UAE company wanted a humanoid robot that could play chess. We chose to settle in Barcelona partly because we found two more engineers there willing to join us, bringing the founding team to four. That became REEM A, and PAL Robotics was born.

From there the vision evolved: REEM B and REEM C pushed robustness and navigation, TALOS (2015) pushed torque control, and the high cost of these platforms is what led us to TIAGo: an affordable, modular robot built for researchers. Later it drew us to a third line entirely: autonomous inventory robots for retail. Our current humanoid platform, KANGAROO, brings that together: modular manipulation with interchangeable end-effectors, alongside advanced bipedal locomotion. The throughline has been moving from “prove a humanoid can work” to “find the right form factor, and the right price, for the actual problem.”

### **2. From your perspective, how has robotics evolved during your time in the industry, particularly the transition from robots operating in highly controlled environments to service, collaborative, and humanoid robots working increasingly closely with people?**

Our own shift illustrates it well. REEM B and REEM C already had to work around people, as hotel receptionists, which forced serious work on navigation in crowded spaces. That know-how carries into retail today: over 200 robots across 15 countries for Decathlon, some running in 24-hour stores, built to defer to people rather than force a path.

It also shaped how we design for people. Our inventory robot is deliberately built not to look human, we call it “the fridge on wheels”, so people, especially children, don’t try to interact with it. Where the goal is social interaction, like our robot Ari greeting customers in-store, we give it a humanoid form instead. That’s a deliberate design choice, not an accident.

On humanoids more broadly, I’m cautious about how much of what’s shown as “robots working alongside people” is real deployment versus demo footage on flat, controlled ground.

### **3. Building an advanced robot requires the integration of many disciplines, from mechanics and control to perception, AI, software, and human-robot interaction. How do you approach bringing these different technologies together into systems that can operate reliably in the real world?**

We build on ROS (Robot Operating System) as the standard middleware, so teams aren't reinventing communication infrastructure for every project. We've contributed back to it in two ways that matter to reliability: ROS Control, which lets different robot hardware interoperate through a common interface, and ROS4HRI, an infrastructure for human-robot interaction, both social (speech, gaze) and physical (helping someone stand up).

Beyond software, we build hardware that is modular by design. That philosophy, plus a rigorous internal testing structure built up since our first public demos, is how we get from research components to something reliable enough to deploy.

**4. PAL Robotics has grown from an ambitious robotics project into a company deploying robots across a range of real-world applications. What have been the biggest challenges in translating cutting-edge robotics research into products that deliver meaningful value, and what broad trends do you think will shape robotics over the next decade?**

The recurring challenge has been cost versus value. TALOS was technically excellent but priced well out of reach for most research groups. That's what pushed us toward TIAGo, built specifically to fit research budgets. Early on, we also had to learn to sustain the business ourselves rather than depend on a single backer, which is why, today, PAL has no external investors, and why we've been free to pivot into new lines like retail robotics, with a clear ROI (under 6 months on our inventory robots).

On trends: I'm cautious of the current wave of humanoid hype and headline market forecasts. The more useful question is which use cases genuinely need legs versus which are solved more reliably, and more cheaply, with wheels. Our own answer with KANGAROO has been to make the platform modular across configurations, locomotion, manipulation with up to 7kg payload arms, human-robot interaction, so the same robot can be built out for the task rather than forcing every use case through a fixed form factor.

**5. As robots become more autonomous and increasingly share spaces with people, how should the robotics community think about safety, trust, responsibility, reliability, and human-centred design in the systems it develops?**

We run projects, especially those in elderly care, through an internal ethics committee and extensive testing before deployment. On the technical side, we've worked specifically on cybersecurity, since a compromised robot in an industrial setting can halt production. And on AI more broadly, I think traceability matters: for anything safety-critical, you need a way to check why a system reached a conclusion, not just trust blindly the output, with a human still in the loop for the final call, similar to how autonomous taxis today fall back to a remote human operator when something goes wrong.

I'd also add that regulation, while it slows some things down, gives me more confidence as a citizen than an unregulated market would.

**6. For students and early-career professionals interested in robotics, AI, and intelligent autonomous systems, what foundational technical skills or mindsets do you consider essential?**

I'd say two things. First, don't specialise too narrowly too early, my own background moved from telecoms to computer vision to what we'd now call AI, and robotics forces you to combine all of it with mechanics and control, so breadth early on pays off. Second, get comfortable building things that actually have to work outside a lab or a demo video, that's a very different discipline from getting something to work once. I'd rather hire an engineer who's fought with a robot that kept failing in the real world than one who's only seen clean results in simulation.

**7. Beyond technical expertise, what leadership, entrepreneurial, or interpersonal skills have been most important in taking PAL Robotics from its early days to where it is today, and what advice would you give to young researchers or engineers who hope to turn ambitious technical ideas into impactful real-world innovations?**

Trust and delegation. I rely on a team of directors I trust completely, work on a weekly and monthly rhythm, and try to only step in on what really needs me, finance, prioritisation.

What I've tried to protect most, though, is the freedom to try things and launch new projects as they make sense, rather than being tied to a single roadmap. We grew from 4 people to over 100, opening in France in 2020 and Italy in 2023, and at every step it mattered more to hire people who are genuinely passionate about robotics. That's the culture I'd want any young engineer joining a company like ours to look for: room to experiment, and colleagues who care about the work itself.

If I'm honest about my own biggest professional doubt: I never wanted to run a company. When my co-founder left in 2010, I chose to stay and lead PAL instead of leaving too, a decision I still don't fully know was right. It's also what's kept me grounded rather than chasing size for its own sake.

**Full Biography:**

Francesco Ferro holds a BSc and MSc in Telecommunications Engineering from the Politecnico di Torino (Italy), a Master's degree from ISEN in Lille (France), and an Executive MBA from the University of Barcelona (Spain). Since 2004, he has been deeply involved in developing state-of-the-art robots designed to solve real-world customer needs.

A highly active figure in the European robotics ecosystem, Francesco was appointed President of euRobotics in March 2026. Following his long-standing involvement as Executive Director and Treasurer, his presidency reflects a deep commitment to strengthening the collaboration between industry, academia, and public institutions. Additionally, he serves as Vice President and sits on the Board of Directors at [ADRA](#) (AI, Data, Robotics Association), acts as the Service Robot Group Chair for the [IFR](#) (International Federation of Robotics), and is a Board Member at both [HispaRob](#) and the [AER Automation](#) Spanish Robotics Association. Since its launch, he has also served as Vice President of [ÁNIMA Humanoides](#), the association bringing together Spain's humanoid robotics ecosystem.

Today, PAL Robotics' portfolio includes cutting-edge solutions for research, logistics, retail, and healthcare, featuring humanoid and biped robots like [REEM-C](#), [TALOS](#) and [KANGAROO](#); as well as autonomous mobile solutions like [TIAGo Pro](#), [ARI](#), and [StockBot](#). Expanding its European footprint, Francesco has been the president and sole owner of [PAL France Sas](#) (Toulouse) since September 2020, and in September 2023, he expanded operations with the opening of [PAL Italy Srl](#) in Bari.