Felipe Diogo

Industry 4.0 & Robotics Engineer · IT/OT Convergence · Industrial Data, AI & Automation

Lisbon, Portugal | Open to relocation within EU or US

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Summary

Industry 4.0 Engineer with 7+ years bridging industrial OT (PLC, SCADA, industrial protocols, electrical design) and modern IT (Python, Docker, cloud, data pipelines, AI/ML). Equally comfortable in a control cabinet or a code editor. Not just surface insights from industrial data, I turn that intelligence into real products: machines, full-stack applications, AI-driven automations, and edge-to-cloud systems that ship and create measurable value. Track record includes 20+ industrial machines delivered on time, several UGV/AGV platforms from 10 kg to 1,200 kg payload covering control, power electronics, wireless comms and multi-sensor integration, a production-grade IIoT platform with six-layer security and AI analytics, and an edge AI visual-inspection system using TensorFlow/PaDiM on Raspberry Pi. Deep fluency with LLMs, AI tooling and AI agents as a daily force multiplier across design, coding and operations. Self-driven, fast learner, auto-didact, genuinely enthusiastic about emerging technology and its application to real industrial problems. Actively seeking a full-time Industry 4.0 engineering role; Movewer Technologies will continue in an advisory capacity to ensure full commitment to the new role.

Technical Skills

IT/OT Convergence & Industrial Automation: PLC programming (TIA Portal, CODESYS), SCADA/HMI (AVEVA, WinCC), industrial protocols (Modbus RTU/TCP, Profinet, EtherCAT, OPC-UA, MQTT, LoRa), edge-to-cloud architecture, IIoT integration, electrical panel design and wiring, system integration, industrial cybersecurity (TLS 1.2+, firewall hardening, least-privilege access).

Robotics & Autonomous Systems: UGV/AGV end-to-end development (10 kg to 1,200 kg payload), motion control, power electronics, multi-sensor integration, real-time teleoperation (WebRTC, MQTT/TLS, HOTAS), ROS/ROS2-inspired pub/sub architectures, robot-to-IT data exchange for vision and automated decision-making, hardware fail-safe watchdogs, embedded firmware (Raspberry Pi, ESP32, Jetson Nano/Orin).

Industrial Data, Analytics & Visualization: Python (pandas, NumPy), SQL, PostgreSQL, InfluxDB (time-series), Telegraf, ETL / data-pipeline design, Grafana, Power BI, Node-RED, KPI dashboards, anomaly detection, predictive analytics, real-time and deferred data intelligence.

AI, ML & LLM Engineering: TensorFlow, TFLite, Anomalib (PaDiM), OpenCV, computer vision, edge AI, industrial visual inspection, LLM APIs, Claude Code, AI agents, prompt engineering, LLM-in-the-loop workflows, AI-augmented monitoring and reporting.

Software, Cloud & DevOps: Python, JavaScript/TypeScript, Node.js, FastAPI, Express.js, Next.js, React, REST and WebSocket APIs, Docker and Docker Compose, Linux / VPS, CI/CD (GitHub Actions), Nginx, Git/GitHub, systemd.

Hardware, Engineering Tools & Methodologies: Raspberry Pi, NVIDIA Jetson Nano, EPLAN, AutoCAD, SolidWorks, MATLAB, LabVIEW, Blender; Scrum, Kanban, Agile, Jira, requirements gathering, cross-functional team leadership, technical documentation.

Experience

Movewer Technologies — Jun. 2025 – Present

Founder & Engineer — *Lisbon, Portugal*

- Architected and deployed a production-grade IIoT monitoring platform (MQTT/TLS → Telegraf → InfluxDB → Grafana → Python analytics) across six Docker services with six-layer security (TLS 1.2+, non-root containers, AES-256 encrypted backups, UFW firewall, provisioned dashboards); delivers commercial-grade monitoring at zero recurring cost, GDPR-compliant by design, with an AI layer generating natural-language insights over raw sensor streams.
- Shipped an edge AI visual-inspection system (MLAI) on Raspberry Pi 4 running PaDiM anomaly detection and TensorFlow/TFLite for dual-use industrial QC and agricultural grading; SCADA-style Next.js dashboard with FastAPI + WebSocket backend, camera calibration pipeline, <500 ms end-to-end latency, fully offline.
- Engineered multiple UGV platforms end-to-end (control, power electronics, wireless comms, multi-sensor integration), including a 1,200 kg-payload modular system; defined IT/OT convergence architecture bridging field devices to cloud with AI-driven insights via REST APIs and automated alerting.

Psyche AeroSpace **Jun. 2024 – Jun. 2025**

Automation & UGV Engineering Manager *São Paulo, Brazil*

- Built the Automation and UGV divisions from zero; delivered systems were cited by company leadership as key technical proof points contributing to a successful fundraising round.
- Led a cross-functional team of 5 engineers across two product lines (agricultural UGVs and drone-support infrastructure), reducing time-to-prototype by ˜30% via structured Scrum sprints on Jira.
- Owned the full development lifecycle of UGV systems (control, power, communication), coordinating with mechanical and electronics teams against tight delivery timelines and budget constraints.
- Delivered a 10 kg-payload agricultural quadcopter from concept to flight-ready prototype in under 6 months, including electrical design, mechanical integration, flight-control logic, and telemetry systems.
- Translated complex operational requirements into technical user stories, functional workflows, and automation logic, bridging business stakeholders and engineering execution.

Controvale **Jun. 2018 – Jun. 2024**

Technician and Automation Engineer *São Paulo, Brazil*

- Engineered 20+ special industrial machines integrating mechatronic systems, IoT connectivity, SCADA supervision, and industrial protocols (Modbus, Profinet, EtherCAT); average project delivered on time and within a 5% budget variance.
- Designed and executed full industrial electrical panel projects end-to-end (load calculations, schematics in EPLAN/AutoCAD, component specification, physical assembly, commissioning, field testing), reducing rework rate by ˜25% through standardized documentation practices.
- Programmed PLCs and configured HMI/SCADA systems (TIA Portal, CODESYS, Indusoft) for manufacturing and process automation, improving operator visibility and cutting unplanned downtime across client facilities.
- Served as regional distributor for Wecon and Kinco; built and maintained a portfolio of 35+ industrial client partnerships over six years, providing technical pre-sales, integration, and post-deployment support.

Projects

MLAI — Edge AI Visual Inspection | *Computer Vision, TensorFlow/TFLite, PaDiM, Next.js 16* **Apr. 2026**

- Self-contained edge AI inspection station on a Raspberry Pi 4 with two independent inference modules (INDUST for PaDiM anomaly detection on MVTec AD for industrial QC, and AGRO for SSD MobileNet V2 fruit detection and quality grading), unified under a SCADA-style Next.js dashboard with a FastAPI + WebSocket live stream, camera calibration, dimensional measurement (px→mm), and SQLite history. Runs fully offline via TFLite (XNNPACK); three auto-restarting systemd services; <500 ms end-to-end latency. ***Click to check it***

Remote Control System (HOTAS) | *Real-Time Teleoperation, MQTT/TLS, WebRTC, Embedded Systems* **Mar. 2026**

- Distributed production-grade system for real-time internet teleoperation of unmanned vehicles. Three independent components (desktop operator station, cloud MQTT broker, Raspberry Pi embedded controller) communicating via MQTT over TLS in a ROS2-inspired pub/sub architecture. 50 Hz HOTAS input, 720p WebRTC video at 30 fps via TURN relay, hardware fail-safe watchdog with sub-second motor lockout on communication loss, 74-test automated suite across three projects, monorepo with Git submodules. ***Click to check it***

AI Data Platform | *Production IIoT, Docker, MQTT/TLS, InfluxDB, Grafana, Python AI Analytics, VPS* **Jan. 2026**

- Production-grade IIoT monitoring platform deployed on a VPS: six containerized services (Mosquitto, Telegraf, InfluxDB, Grafana, Python analytics, encrypted backup), six-layer security architecture (TLS 1.2+), dev/prod separation via Docker Compose overlays, Nginx + Let's Encrypt reverse proxy, and AI-generated natural-language insights via a custom REST API. GDPR-compliant; a zero-cost alternative to commercial SaaS (US$50–200/month). ***Click to check it***

High-Payload UGV — ARMAX | *Autonomous Ground Vehicle, Power & Control Systems, IOT, Hardware* **Aug. 2025**

- Full development of a 1,200 kg-payload autonomous ground vehicle. Build-ready deliverable: complete system architecture, power-electronics design, wireless control stack, performance benchmarks, and commercial feasibility studies and analysis. ***Click to check the Vehicle***

Education

Federal Institute of São Paulo (IFSP) **Jan. 2019 – Dec. 2023**
Bachelor of Control and Automation Engineering *São José dos Campos, Brazil*

Self-Directed Software & AI Engineering **2022 – Present**
freeCodeCamp, One Bit Code, hands-on project work with LLM tooling *1000+ hours*

Languages

Portuguese — Native **English** — Advanced (C1) **Dutch / French / German** — open to learning for role