

Pablo Jácome

IoT Solution Architect | Embedded Systems | Low-Power Cellular & Satellite Telemetry

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PROFILE

Companies invest in IoT to reduce operating costs, protect valuable assets and make better business decisions. I am an IoT Solution Architect with 20+ years of experience designing field-proven systems across electronic hardware, embedded firmware, cellular and satellite communications, cloud platforms and operational workflows.

My background combines naval defense engineering, industrial IoT leadership and peer-reviewed IEEE research. I have worked in multicultural engineering teams with specialists from Israel, Italy, Denmark, Chile and the USA.

I do not build technology demonstrations that stay in a laboratory. I build systems that operate in the field, solve expensive problems and support real business operations.

SELECTED RESULTS

- **Solar-powered satellite devices** operating in the field for 6+ years (~35,000 transmissions/year per unit on 1 W harvesting) with no scheduled battery maintenance.
- **Edge-processing strategies** (on-device decision logic, payload compression) that reduced satellite data costs by up to 85%.
- **Regulatory-grade IoT deployments** supporting Nettel's SENAE-authorized customs cargo monitoring and DIRNEA-listed satellite vessel monitoring.
- **Self-hosted operations platform** supporting ~2,000 container-protection operations per month and manufacturing workflows for 500+ devices.
- **Technology independence** by replacing third-party vendors and subscription tools with in-house hardware, firmware and software.

EXPERIENCE

Technical Director / IoT Solution Architect · Consorcio Nettel (Nettel)

2011 — Present

Regulated cargo and vessel monitoring - cellular and satellite IoT - Guayaquil, Ecuador

Progressed from hands-on hardware engineering into end-to-end technical leadership across devices, firmware, communications, cloud platforms and regulated operational workflows.

- Since 2012, designed and evolved cellular hardware, embedded firmware and platform workflows for georeferenced customs cargo monitoring. Nettel's operator authorization was renewed by SENAE for three years following a successful on-site technical inspection in 2026.
- Designed the electronics and firmware for Nettel's solar-powered NETT SOLAR SP-201 satellite vessel-monitoring device, listed by DIRNEA for vessels below and above 20 gross register tons (GRT) operating in maritime area A1.
- Delivered three generations of tracking hardware: 2G cellular units; PIC/Globalstar solar satellite nodes; and Nordic nRF52840 cargo trackers with BLE sensor aggregation and tamper detection.
- Built the self-hosted operations platform (React, Node.js, PostgreSQL/PostGIS, Linux) for order lifecycle, real-time GPS ingestion, geofencing and manufacturing; reduced satellite data costs by up to 85% through edge processing.
- Lead device manufacturing with international suppliers: production planning, budgeting, supplier qualification and dispute resolution.

EARLIER EXPERIENCE

University Lecturer (part-time) · Universidad de Especialidades Espíritu Santo (UEES)

2007 — 2014

Guayaquil, Ecuador

- Evening lectures in electronics, microcontrollers, digital signal processing and foundational AI (neural networks, pattern recognition).
- Supervised graduation theses in hardware–software co-design.

Hardware Engineer · Ecuadorian Navy (Armada del Ecuador)

2006 — 2011

Naval defense systems · international technology-transfer programs

- Integration and commissioning of communication, radar and electronic-warfare systems to international maritime standards, within programs involving contractors such as IAI (Israel), Saab and Virtualabs (Italy).
- Worked in multicultural, high-security engineering teams from Israel, Italy, Denmark, Chile and the USA; participated in acceptance testing and knowledge transfer to local technical teams.

RESEARCH & PUBLICATIONS

Independent research collaborator with ESPOL research groups (2016–2019), contributing industry experience in power electronics and embedded systems. Co-author of 10+ peer-reviewed IEEE publications on energy storage, microgrids, photovoltaic systems and power converters. This research supports the energy-autonomous devices I build today. Selected:

- Hardware-in-the-Loop for Wind Energy Conversion with Resonant Current Control and Active Damping — *IEEE Latin America Transactions*, 2019
- Li-ion Battery Discharge Emulator Based on Three-Phase Interleaved DC-DC Boost Converter — *IEEE CONCAPAN*, 2019
- Modeling Battery under Discharge Using Improved Thevenin-Shepherd Electrical Battery Model — *IEEE VPPC*, 2018
- Design and Implementation of a Stand-alone Photovoltaic-Powered Phone Booth — *IEEE GHTC*, 2017
- Roles, Challenges, and Approaches of Droop Control Methods for Microgrids — *IEEE ISGT Latin America*, 2017
- A Survey of Battery Energy Storage Systems (BESS), Applications and Environmental Impacts in Power Systems — *IEEE ETCM*, 2017

TECHNICAL SKILLS

Hardware: PCB design (KiCad, Eagle), low-power design, energy harvesting, power budgeting, RF/GNSS integration, DFM and small-series manufacturing.

Firmware: C/C++, PIC24 (CCS), Nordic nRF52840, non-blocking state machines, MQTT, BLE, cellular (2G/LTE) and Globalstar satellite modems.

Platforms: Node.js, React, PostgreSQL/PostGIS, Linux self-hosting (Nginx, PM2), REST/MQTT ingestion pipelines, WhatsApp bot integrations.

Systems: IoT solution architecture, satellite telemetry, GPS tracking, cargo security, operational workflow design, supplier management.

EDUCATION & CONTINUOUS LEARNING

Electronics and Telecommunications Engineer · ESPOL — Escuela Superior Politécnica del Litoral

2006

Selected coursework: ChatGPT & Zapier: Agentic AI for Everyone - Vanderbilt University (2025) - Math for AI Beginner Part 1: Linear Algebra - KAIST (2022)

LANGUAGES

Spanish (native) · English (professional working proficiency) · French (beginner, actively learning)