Antonio **Liñán**

Senior Technical Manager · Solutions Architect · Internet of Things Professional

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"I'm an Engineer with wide experience in designing and delivering end-to-end industrial and consumer solutions, skilled in product management and leading multidisciplinary technical teams. I bring the best of both technical and business worlds to create feasible and scalable solutions and deliver business outcomes."

Skills

Programming	Python, C, Bash
Technologies and Protocols	MQTT(s), CoAP(s), 6LoWPAN, Zigbee, BACnet, Siemens S7, Modbus-RTU/TCP, Sigfox, IO-Link
Operating Systems	Yocto, Buildroot, OpenWRT, Linux (Ubuntu, Debian, Raspbian), Contiki-OS, TinyOS, RIOT, Mbed OS
Tools and Resources	Jenkins CI, Travis CI, Vagrant, Docker
Hardware Platforms and Vendors	Dell Gateways, Advantech, Siemens, Beaglebone, Raspberry Pi, Wago, IFM, SICK, Turck, Arduino, (...)
Languages	Spanish (native), English (fluent)

Experience

relayr GmbH, Jan. 2017 - PRESENT

Berlin, Germany

Senior Manager of Solutions Engineering (Europe and US) *Jan. 2018 - PRESENT*

- Supported the Sales and Professional Services organizations, reporting directly to the Global Director of Professional Services and Delivery.
- Orchestrated complex projects, partners and vendors.
- Evaluated projects and technical documentation, analyzing requirements and specifications towards defining the solution and proposing different integration and development strategies, providing figures for the required effort, cost and timing.
- Responsible for the planning and execution of projects, including syncing with the product Owners and other stakeholders, to ensure requirements and blockers are addressed.
- Managed and coordinated the teams in the Solutions Engineering department (System Integration and Development) using Agile methodologies and best industry practices (with a touch of common sense), to ensure visibility and alignment with business priorities, enabling the team to identify future blockers and other issues in due time.
- Led the design and development of the Hardware and Edge components of an Elevator monitoring product, developed by relayr and an industrial partner. The solution features an Embedded System, coupled with industrial sensors and LTE as uplink interface, and it is intended to monitor the elevator normal operation, and trigger alerts whenever an anomaly leading to a future maintenance has been detected. I was responsible of the Edge software architecture, and technical coordination of the development teams of relayr and their industrial partner.
- Designed and developed in-house tools and internal products to improve testing, development and reuse of our reference solutions, towards maximizing our resources and increasingly improving their quality and documentation, in a fully automated way (Jenkins CI-based, packaging for deployment).
- Managed all the stages of outsourcing processes, including scouting prospect partners and contractors, crafting Request for Pricing (RFP) documentation, reviewing pricing and technical proposals, and defining the Statement of Work (SoW) and Acceptance Criteria to finally review and approve their deliverables.

Berlin, Germany

Team Lead of Solutions Engineering (Europe) *Jan. 2017 - Dec. 2017*

- Designed and implemented a solution to retrofit a blister packaging line for a pharmaceutical manufacturer, integrating different industrial sensors (over Modbus-RTU and other protocols) using a custom mounting bracket, and aggregating the data in the cloud for analytics evaluation.
- Managed the development and industrialization of a hardware-based product, to be commercialized in the Singapore market by a major appliances manufacturer. The device monitors the operation of different home appliances using built-in sensors, and interacting with the cloud and a mobile application. I was directly engaged in the hardware development with an external contractor, end- to-end and acceptance QA testing, and firmware development.
- Designed and implemented a solution to retrofit a one-flow manufacturing line for an Industrial Customer in the Automotive sector, modeling the machines and production line operation, to identify the productions bottleneck, downtimes causes and Overall Equipment Effectiveness (OEE) towards maximizing the production. The solution included integrating PLCs (S7-300 and S7-1200), installing industrial sensors and aggregating data over Modbus-TCP in an edge architecture. My team developed a local rules engine framework to process the raw data and created a digital twin of the production line, running in the Smart Manufacturing Dashboard of relayr.
- Built a development and evaluation framework for internal training purposes, integrating several technologies and protocols such as OPC-UA, Modbus (TCP/IP and RTU), EtherNet/IP, Step 7 (S7), ProfiNet and LoRa. The framework included several PLC (WAGO, Siemens), Gateways (Advantech, Dell, Cisco) and industrial sensors (IFM, Sick, Bosch).
- Developed protocol adapters for CoAP/CoAPS integration over MQTT/HTTPS, using a proxy-like implementation at the edge.

Zolertia S.L (previously Advancare S.L), Sep. 2010 - Jan.2017)

Zolertia S.L — *Barcelona, Spain*

CTO - Product Manager — *Jan. 2015 - Jan. 2017*

- Managed the Hardware and Firmware development team, using Agile methodologies adapted to hardware manufacturing, and engaged directly with the production manager and external contractors, to ensure end-to-end delivering from design to industrialization and manufacturing.
- Managed the company's product portfolio and road map, including feature management, support and cost optimization.
- Designed and developed a lighting solution for an industrial customer in Germany. The Hardware solution (CE certified) was retrofitted to the customer existing lighting product and featured lighting control over DALI and 0-10VDC. The solution was implemented on 6LoWPAN (868MHz) by a third-party partner.
- Technical Lead in the RERUM (REliable, Resilient and secUre IoT for sMart city applications) FP7 European project. I was responsible for the design and development of the low-power sensing modules deployed in Heraklion (Greece) and Tarragona (Spain), and its low-level firmware. More information at: https://ict-rerum.eu
- Ported the company products (MSP430 and Cortex-M3 based) to Open Source Operating Systems (Contiki OS, RIOT OS and TinyOS). I was the main platform maintainer for these Operating Systems.
- Gave several technical workshops and presentations in different countries and events, such as IEEE-sponsored conferences, hackathons, trainings and other evangelist activities.
- Actively documented product information such as technical guides, white papers, data-sheets and erratas.

Advancare S.L — *Barcelona, Spain*

Lead Firmware Developer — *Sept. 2010 - Dec. 2014*

- Developed solutions integrated to the following platforms: Node-RED, Sentilo, Ubidots, Azure, The Things.io, Glue.Things, Xively, relayr, AWS and IBM Bluemix.
- Designed and developed a solution to monitor solar power plants as a white-label product for a German customer. The solution was a battery-powered wireless Modbus-RTU replacement over 6LoWPAN (868MHz/915MHz) for operation in the European, American and Indian market. I was responsible for the Firmware Development, SCADA integration and hardware compliance certification for all of the targeted markets.
- Designed and implemented Firmware and Hardware solutions for in-house products and external consulting projects.
- Developed low-level drivers for commercial and custom made sensors and hardware platforms, porting and implementing network protocols (Zigbee, IEEE 802.15.4, 6loWPAN), and low-power applications for long-term unattended operation.
- Low-level peripheral driver development based on bit-bang, I2C, SPI, RS232/485 and 1-wire protocols.
- Created and maintained the technical Wiki page of the company.

Other experiences

Tecnocom Colombia - Telefónica Telecom — *Bogotá, Colombia*

NOC Engineer (level 2) — *Jun. 2009 - Dec. 2009*

- Handled and resolved technical incidences remotely (network operation control center).
- Managed external contractors working on-site.
- Managed customer incidents according to Service Level Agreements (SLA).

Education

Universidad de Los Andes — *Bogotá, Colombia*

MSc. in Electronic and Computer Science — *2009*

- Research topic: Wireless Sensor Networks

Pontificia Universidad Javeriana — *Bogotá, Colombia*

Specialization in Financial Accounting — *2006*

- Final project derived into business spin-off

Universidad Tecnológica de Bolívar — *Cartagena, Colombia*

B.S. in Electronic Engineering — *2005*

- Major degree in Telecommunications

Extracurricular Activity

PLC Programming Basics to Advanced Siemens S7-1200 — *On-line*

Mepi.pl (via udemy.com) — *2018*

- In progress
- Siemens S7 programing course focused on the S7-1200 model

Become a Professional Python Programmer

On-line

Stone River eLearning (via udemy.com)

2018

- In progress
- Python refresher course with focus on back-end development

Learn JIRA with real-world examples (+Confluence bonus)

On-line

Kosh Sarkar (via udemy.com)

2017

- Finished (no grading)
- JIRA concepts, boards, reporting, filters and rules

AWS Concepts & AWS Essentials

On-line

Linux Academy (via udemy.com)

2017

- Finished (no grading)
- Introduction to AWS modules and concepts

Learn to program: crafting quality code (Python)

On-line

Toronto University (via coursera.org)

2013

- Grade achieved: 96.0%
- Improve quality, testing and readability of code

An Introduction to Interactive Programming with Python

On-line

Rice University (via coursera.org)

2012

- Grade achieved: 95% (with distinction)
- Python basics applied to video game design

C/C++ Programming

Cartagena, Colombia

Servicio Nacional de Aprendizaje)SENA)

2008

- C/C++ intermediate level course

Presentations

Winter School on IoT (Universidad Tecnológica de Bolívar)

Cartagena, Colombia

Technical Trainer

Dec. 2016

- Theory and hands-on exercises about Internet of Things
- Wireless applications, MQTT, UDP and CoAP on IPv6/6LoWPAN
- Battery-powered applications with sensor and actuators
- Four days training with 10 attendees
- Participants presented a project at the end of the venue

Summer School on IoT (Pontificia Universidad Javeriana)

Bogotá, Colombia

Technical Trainer

Jul. 2016

- Theory and hands-on exercises about Internet of Things
- Wireless applications, MQTT, UDP and CoAP on IPv6/6LoWPAN
- Battery-powered applications with sensor and actuators
- Connected applications with IFTT and IPv6
- Five days training with 24 attendees
- Participants presented a project at the end of the venue

Workshop on New Frontiers in Internet of Things (ICTP)

Trieste, Italy

Technical Trainer

Mar. 2016

- Theory and hands-on exercises about Internet of Things
- Wireless applications, MQTT, UDP and CoAP on IPv6/6LoWPAN
- Four days training with 30 attendees
- Participants presented a project at the end of the venue

Internet of Things Summer-Winter summer school (Universidad de La Plata)

La Plata, Argentina

Technical Trainer

Mar. 2016

- Theory and hands-on exercises about Internet of Things
- Wireless applications, MQTT, UDP and CoAP on IPv6/6LoWPAN
- Five days training with 26 attendees
- Participants presented a project at the end of the venue

18th Workshop Latin America and Caribbean (WALC15)

San José, Costa Rica

Technical Trainer

Nov. 2015

- Theory and hands-on exercises about Internet of Things and Contiki OS
- Wireless applications, MQTT, UDP and CoAP on IPv6/6LoWPAN
- Four days training with 25 attendees
- Participants presented a project at the end of the venue

Workshop on Scientific Applications for the Internet of Things (ICTP) *Trieste, Italy*

Technical Trainer *Mar. 2015*

- Theory and hands-on exercises about 6LoWPAN and Contiki OS
- IPv6 and RPL networking concepts
- Four days training with 30 attendees
- Participants presented a project at the end of the venue

Publications

Internet of Things in Five Days (book) *On-line*

Main Author *Jul. 2016*

- Theory and hands-on examples to develop Internet of Things (IoT) applications using IPv6, 6LoWPAN, Contiki OS and Zolertia platforms.
- Examples include wireless networking on UDP/TCP, MQTT, CoAP, RPL and Radio basics.
- The publication of its two releases was sponsored by the Abdus Salam International Centre of Theoretical Physics (ICTP) in Italy (Mar. 2015) and the Pontificia Universidad Javeriana in Colombia (Jul. 2016).
- The book has been translated to Spanish and French by external collaborators and Universities.
- The book is Open Source and released for non-commercial purposes as teaching material.
- Available online at: https://github.com/alignan/IPv6-WSN-book.

Reconfigurable IPv6-enabled wireless sensor network for urban monitoring and street light control in city environments (paper) *Smart City Expo World Congress, Barcelona-Spain*

First Speaker *Nov. 2011*

- Presented the results of the joint efforts made by Advancare S.L and Orange Labs R+D Spain to develop an intelligent test bed for Smart Cities solutions.

Honors & Awards

2014 **Finalist,** IoTogether Hackathon (COMPOSE FP7 European Project) *Barcelona, Spain*

2014 **Best Internet of Things (IoT) Project Concept,** Senzations - Internet of Things track *Biograd na Moru, Croatia*