Antonio Cervelló Duato

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Education

PhD in Electronic Engineering, University of València — 2020 – 2025, EQF Level 8

- **Cum Laude and International Mention**
- Conducted doctoral research at **CERN**, contributing to the Phase II upgrade of the ATLAS Tile Calorimeter, focused on advanced electronic system development and data acquisition.

Master's Degree in Electronic Engineering, University of València — 2016 – 2017, EQF Level 7

- **Final Grade:** 91.5 / 100
- Advanced training in Information and Communication Technologies (ICT) and industrial electronic engineering.
- Specialized in integrated circuit design, electronic and photonic devices, energy conversion, and communication systems and services.

Bachelor's Degree in Telecommunication Electronic Engineering, University of València — 2012 – 2016, EQF Level 6

- **Final Grade:** 89.4 / 100
- Solid foundation in applied electronics, mathematical methods, and engineering principles.
- Skilled in circuit design for analog/digital electronics, RF systems, and power conversion for telecommunications and computing applications.
- Completed one academic year at **Munster Technological University**, Cork, Ireland (Erasmus+, 2014–2015).

Experience

Institut de Física Corpuscular (CSIC–UV), Electronics Engineer — València, Spain, Oct 2025 – Present

- Developments for the Tile Calorimeter Phase-II Upgrade.

Institut de Física Corpuscular (CSIC–UV), Predoctoral Researcher — València, Spain, Jun 2020 – Sept 2025

- Design and implementation of the software data path for the Tile Calorimeter of the ATLAS detector at CERN, as part of the HL-LHC upgrade program.
- Contributed to installation, commissioning, and maintenance of FELIX, SWROD and other readout systems for the ATLAS Tile Calorimeter.
- Developed firmware and software for the TileCoM system (custom SoC design), including a customized AlmaLinux image and OPC UA server integration.
- Designed and automated build and deployment CICD pipelines for the TileCoM.
- Responsible of the hardware development of a custom ATCA switch board, covering schematic design, PCB layout, and validation.
- Participated in multiple testbeam campaigns, supporting setup, maintenance, data acquisition, and system troubleshooting.
- Served as Run Coordinator for the ATLAS TileCal during Run 3 startup, overseeing daily operations and team coordination.
- Acted as on-call expert for the TileCal data acquisition system during LHC data-taking.
- Contributed to TileCal software development and maintenance, adding new features and resolving issues to enhance system stability.

Ionclinics and Deionics SL, Electronics Engineer — València, Spain — Jan 2017 – Jun 2020

- Developed electronic devices for medical applications, physiotherapy, and muscle rehabilitation.
- Performed signal and image processing using MATLAB in multiple projects.
- Programmed firmware for PIC microcontrollers and interfaced with a variety of sensors (pressure, accelerometers, GLCD displays, etc.).

Instituto de Matemática Multidisciplinar (UPV), Electronics Engineer — València, Spain — Feb 2016 – Sep 2016

- Conducted R&D of electronic systems for civil and mechanical engineering applications used in Spain and Chile.
- Developed algorithms and designed graphical user interfaces using MATLAB.
- Designed schematics and multilayer PCBs using Altium Designer.

Nimbus Research Centre, Electronics Engineering Intern — Cork, Ireland — Jun 2015 – Sep 2015

- Designed schematics and PCBs, and performed diagnostics and repair on SMT boards.
- Contributed to the EU-funded TRIBUTE project, focused on minimizing the gap between predicted and actual energy performance (`www.tribute-fp7.eu`).
- Developed hardware and libraries for LoRa-based communication systems.

3D Digital, Design and Development Ltd, Electronics Engineer — London, UK — Apr 2012 – Jul 2012

- Designed electronic schematics and PCBs for sensor-based data logging and monitoring systems for medical use.
- Programmed a wide range of sensors using Texas Instruments MSP430 microcontrollers.

Publications and Patents

PUB - Exploiting Multihoming Capabilities in 5G-Enabled IoT Nodes — Nov 2023

- Fayos-Jordan, Rafael, Felici-Castell, Santiago, Segura-Garcia, Jaume, Alcaraz-Calero, Jose M., ***Cervello-Duato, Antonio*** - 10.1109/access.2023.3338180

PUB - The PreProcessor module for the ATLAS Tile calorimeter at the HL-LHC — Sep 2023

- Valero, A., Carrió, F., Fiorini, L., ***Cervelló, A.***, Hernandez, D., Ruiz Martinez, A. - 10.3389/fdest.2023.1264123

PUB - The TileCal PreProcessor interface with the ATLAS global data acquisition system at the HL-LHC — Nov 2022

- ***Antonio Cervelló***, Fernando Carrió, Raimundo García, Julio Martos, Jesús Soret, José Torres, Alberto Valero - 10.1016/j.nima.2022.167492

PUB - Intra- and Inter-Rater Reliability of Strength Measurements Using a Pull Hand-Held Dynamometer Fixed to the Examiner's Body and Comparison with Push Dynamometry — Jul 2021

- Javier González-Rosalén, Josep Carles Benítez-Martínez, Francesc Medina-Mirapeix, Alba Cuerda-Del Pino, ***Antonio Cervelló***, Rodrigo Martín-San Agustín - 10.3390/diagnostics11071230

PAT - Measuring device for isoinercial sport machine — Mar 2019

- Javier Villar Cloquell, Josep Oliver García, Josep Carles Benítez Martínez, ***Antonio Cervelló Duato***, Jose Casaña Granell, Vicente Alepuz Moner, Fernando Martín Rivera - ES2705359A1

Projects

ATCA Switch Board – High-Speed Networking Module 2024

- Designed a 10-layer PCB ATCA switch board for efficient Ethernet communication across multiple slots in a ATCA shelf system. Integrated a 16-port Gigabit Ethernet switch, SFP interfaces, USB hub, and dynamic configuration via microcontroller.
- Ensured ATCA compliance and validated performance with stable 1 Gbps throughput and error-free transmission.

SACAQM Node – Air Quality Monitoring Device 2023

- Designed and developed a versatile air quality monitoring sensor as part of the South African Consortium of Air Quality Monitoring (SACAQM) project. The device measures a wide range of environmental parameters, including PM1, PM2.5, PM4, PM10, temperature, humidity, VOC index, NOx index, and various gas concentrations.
- It supports multiple communication interfaces—LoRa, Wi-Fi, and LTE—depending on configuration, and operates on both USB and battery power, with charging capabilities via USB and solar cells.

Design and Characterization of an Isoinertial System in Rehabilitation Equipment 2017

- This project focuses on the design and characterization of an isoinertial training system incorporating a sensorized pulley and dedicated software. The system accurately measures kinetic variables such as linear velocity, acceleration, moment of inertia, power, force, and work.
- It also identifies the phase transitions of exercise repetitions, offering precise and real-time feedback for rehabilitation and performance monitoring.

Weld Ultrasound Inspection System (WUIS) 2016

- This project presents a technological solution for automated, accurate, and low-cost weld defect diagnosis using wavelet transforms and convolutional neural networks (CNNs), implemented entirely in MATLAB.

Awards

Recognition of Excellent Academic Results — Generalitat Valenciana 2018

- Awarded for outstanding academic performance during my Bachelor's Degree in Telecommunications Electronic Engineering at the University of València.

Master's Degree Special Award — Universitat de València 2017

- Awarded for achieving the highest academic performance in the Master's Degree in Electronic Engineering at the University of València.

Bachelor's Degree Special Award — University of València 2016

- Awarded for achieving the highest academic performance in the Bachelor's Degree in Telecommunications Electronic Engineering at the University of València.

Best Final Project — Rotary Club Valencia Awards 2016

- Recognized for the best final project in the Bachelor's Degree in Telecommunications Electronic Engineering at the University of València.

National Award: "Liberalisation of Telecommunications" — Special Mention in Electronic Systems - Colegio Oficial de Ingenieros Técnicos de Telecomunicación 2016

- Granted for the project *WUIS (Weld Ultrasound Inspection System)*, developed as part of my Bachelor's Degree in Electronic Engineering at the University of València.

Skills

Technical skills: C, C++, Python, MATLAB, PCB design with KiCAD and Altium, SoC, Petalinux, Linux.

Comunication skills: Fluent in Spanish, Catalan, and English. Completed a certified course in Communication Skills and Decision Making. Proven teamwork experience with successful outcomes.