

CURRICULUM VITAE (CVA)

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Part A. PERSONAL INFORMATION

CV date 15/07/2022

First name	Bartomeu		
Family name	Alorda Ladaria		
Gender (*)	Male	Birth date (dd/mm/yyyy)	22/04/1974
Social Security, Passport, ID number	43086696Z		
e-mail	tomeu.alorda@uib.es	URL Web	
Open Research and Contributor ID (ORCID)(*)		0000-0002-5617-6254	

(*) Mandatory

A.1. Current position

Position	Associate Professor / Senior Lecturer		
Initial date	15/05/2018		
Institution	University of the Balearic Islands		
Departament/Center	Department of Industrial engineering and construction Escola Politècnica Superior		
Country	Spain	Teleph. number	+34971259941
Key words	Wireless Sensor Network Applications and IoT technologies, Efficiency, reliability, and security of digital systems based on microprocessors, green algorithms and edge computing		

A.2. Previous positions (research activity interruptions, art. 45.2.c))

Period	Position/Institution/Country/Interruption cause
01/10/2011-14/05/2018	Lecturer with doctoral degree/UIB/Spain
04/10/2010	Interruption due to birth of the 2 nd child
01/10/2004-30/09/2011	Lecturer/UIB/Spain
13/08/2004	Interruption due to birth of the 1 st child
14/10/2002-30/09/2004	Assistant lecturer/UIB/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Physics PhD	Balearic Islands University	2005
Telecommunication Eng.	University of the Polytechnic of Catalunya	2000
Tec. Telecommunication Eng.	Balearic Islands University	1997

Part B. CV SUMMARY (2011-2021)

The research career of Dr. Bartomeu Alorda Ladaria, with 3 research periods recognized, has focused on the study of measurement techniques and resilience of digital circuits and memory systems that began with the doctoral thesis and has continued with a trajectory of results: more than 20 publications in JCR journals and more than 35 publications in international

conferences and professional meetings. Since 2007 he has developed a transfer-based activity focused on the application of cyber-physical electronic systems in important sectors in the Balearic Islands. He has deepened in the study of disruptive technologies like battery powered communication protocols or extreme low power computing and its application in the field of sensor networks, the Internet of things and green applications.

During the last 10 years he has co-directed two doctoral theses in the PhD in Electronic Engineering, 4 TFGs in the Master of Industrial Engineering (2, 2017, 2020) and Master of Intelligent Systems (2, 2020, 2021) of the UIB and more than 20 TFGs focused on the field of instrumentation and techniques for quality and safety improvement of microcontroller-based digital systems and their applications. In addition, he has participated in more than 10 projects as a member of the research team with competitive regional, national, and international funding. He has led or is leading as PI up to 2 regional projects, 2 national projects, 1 network of excellence (RISC-V national network), 2 European projects and up to 7 knowledge transfer contracts with the productive sector of the community of the Balearic Islands, being the most outstanding: the contract (2019 - 2022) for the deployment of the IoT-IB public network with LoRaWAN technology, the contract (2021 - 2024) for the measurement of torrent conditions and the integration of the UIB hydrometric network in the IOT-IB network to create a flood early warning system and, several aligned contracts in the Smart Destination line focused on the analysis of massive data obtained from public wifi infrastructures for the application to urban mobility (2016 - 2023).

Through this scientific activity he has established and strengthened multidisciplinary collaborations with other international, national and UIB research groups to the point of having launched up to 5 patents (of which two in exploitation in the industry) providing knowledge related to sensor technologies, cyber-physical systems, WSNs and IOT and the design of measurement infrastructures applied to the processing of sensor time series data for the inference of results and machine learning.

In addition to the UIB affiliation, he is a research member of the INAGEA (Institute of Agro-environmental Research and Water Economy), IdisBa (Institute for Health Research Foundation of the Balearic Islands) and member of the board of the Digital Innovation Hub in artificial intelligence of the Balearic Islands (DIHBAL-TUR). Additionally, he is the Innovation and Transfer knowledge director of the Balearic Island University and the academic chair director of "Catedra Santander-UIB d'innovació i Transferència del Coneixement".

Part C. RELEVANT MERITS

C.1. Publications

- 1 A. Alheyasat, G. Torrens, S. Bota, **B. Alorda** (AC), 2021, Estimation during design phases of suitable SRAM cells for puf applications using separatrix and mismatch metrics, *Electronics*, 10(12), 1479.
- 2 V. Ramos (AC), W. Yamaka, **B. Alorda**, S. Sriboonchitta, 2021, High-frequency forecasting from mobile devices' bigdata: an application to tourism destinations' crowdedness, *Int. J. of Contemporary Hospitality Management*, 33(6), pp. 1977-2000.
- 3 D. Peña-Angulo, J. Estrany (AC), J. García-Comendador, J. Fortesa, M. Tomàs-Burguera, J. Company, **B. Alorda**, E. Nadal-Romero, 2021, Influence of weather types on the hydrosedimentary response in three small catchments on the Island of Mallorca, Spain, *Environmental Research*, 192.
- 4 G. Torrens, **B. Alorda** (AC), C. Camona, D. Malagón, J. Segura, S. Bota, 2019, A 65-nm Reliable 6T CMOS SRAM Cell with Minimum Size Transistors, *IEEE Transactions on Emerging Topics in Computing*, 7(3), pp. 447-455.
- 5 M.A. Miranda (AC), C. Barceló, F. Valdés, ..., **B. Alorda** (9/9), 2019, Developing and Implementation of Decision Support System (DSS) for the Control of Olive Fruit Fly, *Bactrocera Oleae*, in *Mediterranean Olive Orchards*, *Agronomy*, 9(10), 620.
- 6 B. Shaked, A. Amore, C. Ioannou, ..., D. Nestel (AC), (5/20), 2018, Electronic traps for detection and population monitoring of adult fruit flies (Diptera: Tephritidae), *Journal of*

- Applied Entomology, 142, pp.43-51.
- 7 C. Perez-Vidal (AC), L. Garcia, C. Carmona, **B. Alorda**, A. Salinas, 2017, Wireless transmission of biosignals for hyperbaric chamber applications. Plos One, 12(3).
 - 8 **B. Alorda** (AC), C. Carmona, G. Torrens, S. Bota, 2016, An affordable experimental technique for SRAM write margin characterization for nanometer CMOS technologies, Microelectronics Reliability, 65, pp.280-288.
 - 9 **B. Alorda** (AC), R. Pujol-Nadal, G. Rodriguez-Navas, A. Moià-Pol, V. Martínez-Moll, 2015, Collaborative distributed sun-tracking control system for building integration with minimal plant area and maximum energy-conversion efficiency, International Journal of Electrical Power and Energy Systems, 70, pp.52-60.
 - 10 **B. Alorda** (AC), G. Torrens, S. Bota, J. Segura, 2014, Adaptive static and dynamic noise margin improvement in minimum-sized 6T-SRAM cells, Microelectronics Reliability, 54(11), pp.280-288.

C.2. Congress

- 1 A. Alheyasat, G. Torrens, S. Bota, **B. Alorda** (AC), Bit-cell selection analysis for embedded SRAM-based PUF, Oral Presentation, IEEE International Symposium on Circuits and Systems, october 2020.
- 2 **B. Alorda** (AC), M. A. Ribot, Energy Consumption Analysis in Adaptative Wireless Sensor Network, Oral Presentation, International Conference on Advanced Technologies, Systems and Services in Telecommunications, TELSIS, 2019.
- 3 **B. Alorda** (AC), G. Torrens, S. Bota, 6T CMOS SRAMs reliability monitoring through stability measurements, Oral Presentation, IEEE International Symposium on On-Line Testing and Robust System Design, IOLTS 2017.
- 4 M.A. Ribot (AC), J. Cabeza, P. Closas, C. Botteron, F. Valdes, **B. Alorda**, P.-A. Farine, Carrier tracking using extended Kalman filters for GNSS synthetic aperture processing with a rotating antenna, Oral Presentation, International Technical meeting of the satellite division of the institute of navigation, ION GNSS, 5, pp. 3519-3537, 2017.
- 5 C. Carmona, **B. Alorda** (AC), M.A. Ribot, Energy consumption savings in ZigBee-based WSN adjusting power transmission at application layer, Oral Presentation, International workshop on Power and Timing Modeling, Optimization and Simulation, PATMOS 2014.
- 6 **B. Alorda** (AC), C. Carmona, S. Bota, Word-line power supply selector for stability improvement of embedded SRAMs in high reliability applications, Oral Presentation, Design, Automation and Test in Europe, DATE 2014.
- 7 G. Torrens (AC), I. de Paul, **B. Alorda**, S. Bota, J. Segura, Alpha-Ser determination from Word-line voltaje margin (WVM) measurements: Design architecture and experimental results, Oral Presentation, European Conference on Radiation and its Effects on Components and Systems, RADECS, 2013.
- 8 G. Rodriguez-Navas (AC), M.A. Ribot, **B. Alorda** (AC), Understanding the role of Transmission Power in Component-based Architectures for Adaptive WSN, International Conference on Computer Software and Applications Workshops, pp. 520-525, 2012.

C.3. Research projects

- 1 DTS21/89. QChainMED: cuidado y seguimiento del medicamento más allá del hospital. Ministerio de ciencia e innovación. Instituto de Salud Carlos III. **Bartomeu Alorda Ladaría** (UIB – IdisBA). 01/01/2022 – 31/12/2023. 94.050,00€ Investigador principal.
- 2 WifiCOVID: piloto de un sistema de alerta de detección de aglomeraciones y pérdidas del distanciamiento social en el ámbito urbano, Fondo de soporte euroregional COVID19 de la Euroregión Pirineos Mediterráneo. **Bartomeu Alorda Ladaría** (Universidad Illes Balears). 18/12/2020 – 31/12/2021. 20.000,00€. Investigador principal.
- 3 SEQR: piloto para crear un corredor sanitario seguro en las Islas Baleares, Fondo de soporte euroregional COVID19 de la Euroregión Pirineos Mediterráneo. **Bartomeu Alorda Ladaría** (FUEIB). 18/12/2020 – 31/12/2021. 20.000,00€. Investigador principal.

- 4 PRD2018/52, Tecnologías OpenData para el análisis y gestión de la movilidad turística en Baleares. Conselleria de innovació, investigació y turismo. Mauricio Ruiz Pérez (Universidad Illes Balears). 01/07/2020 – 30/06/2023. 37.200,00€. Investigador.
- 5 CGL2017-88200-R, Conectividad funcional hidro-sedimentaria en cuencas mediterráneas: escenarios de cambio global. Ministerio de Economía, Industria y Competitividad. Joan Josep Estrany Bertos. (Universidad Illes Balears). 01/01/2018-31/12/2021. 122.452€, Investigador.
- 6 ECHO/SUB/2016/742580/PREV08, TRIBUTE – Trigger Buffers for inundation Events. Unión Europea. Joan Josep Estrany Bertos (Universidad Illes Balears) 01/01/2017 – 31/12/2018. 22.420,50€, Investigador.
- 7 AAEE036/2017, Buenas prácticas para la captura de datos del territorio mediante la conexión de sensores a la red LoraWAN pública. Conselleria de innovació, recerca i turisme. **Bartomeu Alorda Ladaria**. (Universidad Illes Balears). 01/01/2017- 30/09/2018. 19.310,4 €, Investigador principal.
- 8 RTC-2016-4812-5, Sistema de prevención y mitigación de proliferaciones algales en aguas costeras basado en modelización hidrodinámica avanzada (HYDROALGAL). Ministerio de Economía y Competitividad (MINECO). **Bartomeu Alorda Ladaria**. (Universidad Illes Balears). 13/12/2016-31/03/2020. 136.154 €, Investigador principal.
- 9 TEC2014-52878-R, Explotación y escalado de características no-lineales de dispositivos CMOS-M/NEMS monolíticos para aplicaciones específicas en aproximaciones 'More Moore' y 'More than Moore' (DEYNEMS). Ministerio de Economía y Competitividad (MINECO). Jaume Verd Martorell; Sebastián Antonio Bota Ferragut. (Universidad Illes Balears). 01/01/2015-31/12/2018. 207.152 €, Investigador.
- 10 II-B/2.1/0856, FRUITFLYNET - A location-aware system for fruit fly monitoring and pest management control. Unión Europea. Miguel Angel Miranda Chueca. (Universidad Illes Balears) 31/12/2013-30/12/2015, 224.137,18 €, Investigador.

C.4. Contracts, technological or transfer merits

- 1 **Contract:** Technological support for the deployment of the IoT-IB network and LoRaWAN communications network technology in the Balearic Islands. Entidad pública empresarial de Telecomunicaciones e Innovación de las Illes Balears (IBETEC). **Bartomeu Alorda Ladaria** (UIB). 04/03/2019 – 31/12/2022. 214.000,00€.
- 2 **Contract:** Collaboration for the transformation and development of the network of hydrometric stations as flood warning systems. Dirección General de Emergencias e Interior del Govern Illes Balears. Joan Josep Estrany Bertos (Hydrology expert), **Bartomeu Alorda Ladaria** (technology and communications expert) y Mauricio Ruiz Pérez (GIS expert) (UIB-INAGEA). 17/05/2021 – 16/05/2024. 1.420.614,22€
- 3 **Patent with license:** Muñoz, J.; Carmona, C.; Horrach, G.; **Alorda, B.** U201830666. Aparato para la gestión de un sistema de ventilación cruzada. España. 2018. Universidad de las Islas Baleares. Licenciada a Instituto Balear de la Vivienda (IBAVI) y a Robot S.A.
- 4 **Patent with license:** **Alorda Ladaria, Bartomeu**; Mas Ynarejos, Xesc, P201530982. Método de obtención de información sensible mediante dispositivo móvil. España. 2015. Universidad de las Islas Baleares. Licenciada a Dirección General de Emergencias e Interior del Govern Illes Balears.