

CURRICULUM VITAE ABREVIADO (CVA)

Part A. PERSONAL INFORMATION *

First name	José Antonio		
Family name	Álvarez Bermejo		
Gender (*)		Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail		URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-5815-7xxx		

(*) Mandatory

A.1. Current position

Position	Tenured Professor (Profesor Titular de Universidad)		
Initial date	25/07/2018		
Institution	Universidad de Almería		
Department/Center	Informatics	Escuela Superior de Ingeniería	
Country	Spain	Teleph. number	
Key words	Computer engineering, Computer Sciences, Sensor network, Cryptography, Embedded computing, Malware		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
01/08/2000-01/09/2001	IT Head Engineer / Primaflor SAT / Spain
01/10/2001-25/12/2005	Profesor asociado / Universidad de Almería / Spain
26/12/2005 – 09/11/2012	Profesor colaborador / Universidad de Almería /Spain
10/11/2012 – 24/07/2018	Profesor contratado doctor / Universidad de Almería / Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Computer Engineering	Universidad de Almería	2010
Licensed (Ingeniería Informática)	Universidad de Granada	2000

(Include all the necessary rows)

Part B. CV SUMMARY (max. 5000 characters, including spaces)

Professor of Computer Science at the University of Almería's School of Engineering, with a career linking high-performance computing, cybersecurity and applied cryptography, IoT, sensor systems and technology for social inclusion. After graduating in Computer Engineering at the University of Granada (2000, Best Final Project Award), he joined the Department of Computer Architecture and Technology in 2001, obtained his PhD in Computer Science in 2010 and has held management roles including Director of the Office for International Promotion (2018–2019) and currently Director of the Office for International Mobility. His initial research focused on parallel and distributed computing, extending classical programming models through active objects and porting 3D tomographic image reconstruction algorithms to scalable, load-balanced architectures on supercomputers. This work, published in the Journal of Supercomputing and related venues, laid a solid foundation in high-performance scientific computing. Progressively, his activity evolved towards multidisciplinary applications that combine parallel computing, cryptography and embedded systems with chemistry, agri-food technology and social and health services. He is author of 58 JCR-indexed journal papers and more than 70 international conference contributions, over 30 teaching-oriented papers and six books, and has participated in 17 competitive research projects and several

technology-transfer contracts, including a collaboration with CASER Seguros for the “Helpy” system. He has supervised three PhD theses and is currently supervising four more. A distinctive feature of his trajectory is the generation of protected intellectual property with clear social and industrial impact. He is co-inventor of three patents, two of them transferred: a guided parking localisation system for people with disabilities, recognised with regional and national awards; a device and system for controlling the entry and exit of objects in monitored premises; and a method and system for QR-based sensing with error-detecting codes capable of monitoring variable conditions such as food quality, water status or rapid disease diagnostics. He is also co-author of a registered hardware-based secure access system for protecting digital information. These developments are linked to collaborations with research groups such as ECSens and DITEC at the University of Granada, addressing colourimetry, biosensors, secure hardware modules and efficient key-exchange protocols for embedded sensor networks. His applied research also includes tools for detecting victims in school bullying processes, systems for spatial orientation of people with brain injuries, accessible tourism platforms and recommendation systems. He is also a member of the CIAIMBITAL research centre at the University of Almería, working with experts in electronics, chemistry, agronomy, education and health sciences. In the field of cybersecurity and cryptography, he has contributed to hardware accelerators for elliptic-curve cryptography, secure IoT architectures, blockchain-based federations of wireless sensor nodes, privacy-oriented analyses of blockchain, big-data pipelines for IoT with data curation, and homomorphic encryption for secure analysis of IoT communications, as well as secure group key distribution, ECC-based protocols and hardware security modules for smart-agro, industrial IoT and critical infrastructures. He has received two national research evaluation awards (sexenios) and five regional performance segments and won the NordicloT 2015 award. He has been a member of the organising and scientific committees of the international conference CMMSE since 2013 and editor of its proceedings in 2017 and 2018, as well as thematic leader for Blockchain and Cybersecurity at the III Iberian Symposium on Horticultural Engineering. His commitment to knowledge transfer is reflected in collaborations with public administrations, NGOs and companies through invited talks, joint projects and software transfers. At European level, he is an active member of ECTEG (European Cybercrime Training and Education Group), created by the European Commission to support Europol-EC3 and CEPOL and, indirectly, all EU law-enforcement agencies on cybersecurity issues. Within ECTEG he participates in the DECRYPT project, which develops, together with Europol, a decryption platform to fight ransomware. He also maintains close collaborations with the Spanish Guardia Civil and National Police. Altogether, his trajectory combines high-performance computing, advanced cryptographic engineering and multidisciplinary innovation with a strong orientation towards social impact, industrial transfer and support to European cybercrime-fighting capabilities.

Part C. RELEVANT MERITS

C.1. Publications

1. Mesa-Simón, M., Escobar-Molero, A., Parrilla, L., Morales, D. P., Álvarez-Bermejo, J. A., & Romero, F. J. (5/6) (2025). Integration of hardware security modules into BLE beacons: Fundamentals and use in a secure and private geofencing application. *Internet of Things*, 34, Article 101762. <https://doi.org/10.1016/j.iot.2025.101762>.

2. de Haro-Olmo, F. J., Valencia-Parra, A., Varela-Vaca, Á. J., Álvarez-Bermejo, J. A., & Gómez-López, M. T. (4/5) (2023). ELI: An IoT-aware big data pipeline with data curation and data quality. *PeerJ Computer Science*, 9, e1605. <https://doi.org/10.7717/peerj-cs.1605>.
3. Parrilla, L., García, A., Castillo, E., Álvarez-Bermejo, J. A., López-Villanueva, J. A., & Meyer-Baese, U. (4/6) (2022). Dracon: An open-hardware based platform for single-chip low-cost reconfigurable IoT devices. *Electronics*, 11(13), Article 2080. <https://doi.org/10.3390/electronics11132080>.
4. Cabrera-Gutiérrez, A. J., Castillo, E., Escobar-Molero, A., Álvarez-Bermejo, J. A., Morales, D. P., & Parrilla, L. (4/6) (2022). Integration of hardware security modules and permissioned blockchain in industrial IoT networks. *IEEE Access*, 10, 114331–114345. <https://doi.org/10.1109/ACCESS.2022.3217815>.
5. Marín-Sánchez, A., Ortiz-Gómez, I., Gallego-Méndez, D., Rodríguez-Domínguez, C., Capitán-Vallvey, L. F., Morales, D. P., Álvarez-Bermejo, J. A., Castillo, E., & Salinas-Castillo, A. (7/9) (2022). Smart quick response code for multianalyte determination. *Measurement*, 204, Article 112035. <https://doi.org/10.1016/j.measurement.2022.112035>.
6. Haro-Olmo, F. J., Álvarez-Bermejo, J. A., Varela-Vaca, Á. J., & López-Ramos, J. A. (2/4) (2021). Blockchain-based federation of wireless sensor nodes. *Journal of Supercomputing*, 77(7), 7879–7891. <https://doi.org/10.1007/s11227-020-03605-3>.
7. Fernández-Cerero, D., Varela-Vaca, Á. J., Fernández-Montes, A., Gómez-López, M. T., & Álvarez-Bermejo, J. A. (5/5) (2020). Measuring data-centre workflows complexity through process mining: The Google cluster case. *Journal of Supercomputing*, 76(4), 2449–2478. <https://doi.org/10.1007/s11227-019-02996-2>.
8. Parrilla, L., Álvarez-Bermejo, J. A., Castillo, E., López-Ramos, J. A., Morales-Santos, D. P., & García, A. (4/6) (2019). Elliptic curve cryptography hardware accelerator for high-performance secure servers. *Journal of Supercomputing*, 75(3), 1107–1122. <https://doi.org/10.1007/s11227-018-2317-6>.
9. Novas, N., Álvarez-Bermejo, J. A., Valenzuela, J. L., Gázquez, J. A., & Manzano-Agugliaro, F. (2/5) (2019). Development of a smartphone application for assessment of chilling injuries in zucchini. *Biosystems Engineering*, 181, 114–127. <https://doi.org/10.1016/j.biosystemseng.2019.03.009>.
10. Álvarez-Bermejo, J. A., Morales-Santos, D. P., Castillo-Morales, E., Parrilla, L., & López-Ramos, J. A. (1/5) (2019). Efficient image-based analysis of fruit surfaces using CCD cameras and smartphones. *Journal of Supercomputing*, 75(3), 1026–1037. <https://doi.org/10.1007/s11227-018-2284-y>.

C.2. Congress

1. Plenary talk. Protection of critical infrastructures in Kazakhstan. Spanish Embassy invitation. 2025. June, 15th-18th. Astana, Kazakhstan.
2. Smart QR codes to trace the supply chain. III Symposium Ibérico de Ingeniería Hortícola "Smart Farming". Poster. 2022, march. Cartagena (Spain). Chair of the Blockchain and Cybersecurity track.

C.3. Research projects

1. "Sistema Integral de Monitorización de señales biométricas: aplicación para seguimiento del estado del Militar SIMMA" (cód. 02/16) Funding Agency/Program: Centro Mixto UGR-MADOC (Univ. de Granada - Ejército de Tierra) Leading Researcher: Antonio García Ríos

Dates: 22/04/2016 to 22/10/2017 Funding: 6.000 €. Role: Researcher, developed the sensing framework.

2. "Computación de Altas Prestaciones en Ciencia y Tecnología" (cód. P06-TIC-01426) Funding Agency/Program: Consejería de Innovación, Ciencia y Empresa – Proyectos de Investigación de Excelencia Dates: 12/04/2007 to 11/04/2010 Leading Researcher: Dr. José Jesús Fernández Rodríguez Funding: 139.536 euros. Role: researcher, developed parallel methods to reconstruct 3D images from structural microorganisms.
3. "Computación de Altas Prestaciones en Acción: Procesamiento de Imagen, Optimización Global y Multimedia" (cód. TIN2008-01117 Funding Agency/Program: Ministerio de Ciencia e Innovación-Plan Nacional I+D+i. Leading Researcher: Dra. Inmaculada García Fernández. Dates: 01/01/2009 to 31/12/2013. Funding: 661.870 euros. Role: researcher, developed parallel methods to reconstruct 3D images from structural microorganisms.
4. "Computación de Altas Prestaciones en Localización de Recursos " (cód. P08-TIC-03518), Funding Agency/Program: Consejería de Innovación, Ciencia y Empresa – Proyectos de Investigación de Excelencia. Leading Researcher: Dra. Pilar Martínez Ortigosa. Dates: 14/01/2009 to 14/01/2012. Funding: 172.800 euros. Role: researcher, developed parallel methods to reconstruct 3D images from structural microorganisms.
5. "PACIM: Paralelización adaptativa de códigos irregulares en multicore" (cód. P11- TIC-7176), Funding Agency/Program: Consejería de Economía, Innovación, Ciencia y Empleo –Proyectos de Investigación de Excelencia, convocatoria 2011. Leading Researcher: Dr. Leocadio Gonzalez Casado. Dates: 30/04/2013 to 29/04/2016. Funding: 112.884 euros. Role: researcher, developed parallel methods to reconstruct 3D images using advanced object-oriented techniques.
6. "Avances en sensorización y procesamiento de señales naturales de la banda ELF" (cód. TEC2014-60132-P). Funding Agency/Program: Ministerio de Economía y Competitividad - Plan Nacional I+D+i. Leading Researcher: Dr. José Antonio Gazquez Parra. Dates: 01/01/2015 a 31/12/2018. Funding: 89540 euros. Role: Wireless sensor networks development.
7. "Inteligencia artificial para la estimación de producción agrícola en invernadero" (Cód. CPP2021-008949). Funding Agency/Program: Ministerio de Ciencia e Innovación. Plan Nacional. Leading Researcher: Dr. Diego Luis Valera Martínez. Dates: 01/11/2022 - 31/10/2025. Funding: 254.178,00. Role: implementing AI models to forecast fruit production.

C.4. Contracts, technological or transfer merits

1. **Patent:** Sistema guiado de localización de aparcamiento para personas discapacitadas: (ES2415514 (A1)) *Licensed (Country: Spain)*. Awarded with FAAM de ORO regional award. And with ALARES (national award).
2. **Patent:** Dispositivo, sistema y método para el control de la entrada y salida de objetos en recintos vigilados (ES2387542 (A1)). *Licensed (Password Technologies, Spain)*.
3. **Patent:** Método, dispositivo y sistema para el almacenamiento, la codificación y la decodificación de información basada en códigos con capacidad de detección de errores ES2835053 (A1), WO2021123483 (A1). Awarded at the conference Blockchain and Cybersecurity at the III Iberian Symposium on Horticultural Engineering.
4. **Contract:** " Sistema hardware inalámbrico para el acceso a servicios de personas identificadas usando smartphones iOS " Contracting company: CASER seguros (Spain). Contractor: Oficina de Transferencia de Resultados de Investigación (OTRI) – UAL. Funding: 3000 €. Dates: 01/02/2017 to 01/03/2017. Leading researchers: José Antonio Álvarez Bermejo.

5. **Contract:** Malware Defense Techniques. Contracting entity: Europol-EC3. Contractor: Oficina de Transferencia de Resultados de Investigación (OTRI) – UAL. Funding: 6000 €. Dates: 01/02/2025 to 01/02/2026. Leading researchers: José Antonio Álvarez Bermejo.