



CURRICULUM VITAE (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

CV date	11/12/2021
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First name	Jesús		
Family name	Ureña Ureña		
Gender (*)	Male	Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail			URL Web: www.uah.es
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-7121-8651		

(*) Mandatory

A.1. Current position

Position	Full Professor		
Initial date	20/10/2010		
Institution	University of Alcalá		
Department/Center	Electronics	School of Engineering	
Country	Spain	Teleph. number	
Key words	Mobile Robots, Sensory Systems, Local positioning, Electronic Control, Smart Spaces, Intelligent Transport Systems.		

A.2. Previous positions (research activity interruptions, art. 14.2.b)

Period	Position/Institution/Country/Interruption cause
1986-1998	Lecturer / University of Alcalá /Spain
1998-2110	Associate Professor/ University of Alcalá /Spain
2010-	Full Professor/ University of Alcalá /Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Doctorado en Ingeniería de Telecomunicación	Universidad de Alcalá	1998
Ing. de Telecomunicación	Universidad Politécnica de Madrid (UPM)	1992
Ing. Tec. Telecomunicación	Centro Enseñanzas Integradas (UPM)	1986

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

Google Scholar: 3402 cites (**1623 last 5 years**), h-index=30 (**20**), i10-index=89 (**43**).

RG Score: 35.46 (<https://www.researchgate.net/profile/Jesus-Urena/scores>)

J. Ureña holds a Degree in Telecommunications Eng. from the Polytechnic University of Madrid and PhD in Telecommunications Eng. from the University of Alcalá, where currently occupies a position of **Full Professor** in the Dep. of Electronics. He has been **Director and Secretary of the Electronics Dep.** of the Univ. of Alcalá. From 1999 **he is leading the GEINTRA-USRF research group** in the Dep. of Electronics, Univ. of Alcalá, with 7 permanent



researchers and **an average of more than 15 scholarships**, contracts and PhD students. He has participated in numerous **research projects, 35 with public funding, total funding 2.700.000 €** (13 as Principal Investigator) **and more than 30 with private funding, total funding of about 2.000.000€** (more than half as responsible).

The topics addressed in research covers the areas of mobile robotics, multisensor integration, ultrasound and infrared sensors, implementation of algorithms in hardware, positioning systems, ambient assisted living and electronic and information technologies applied to transport. As results of the research projects there **are publications in journals (more than 80 international publications in indexed journals)** and participations in national and international conferences (more than 150 papers). These papers are published in different journals - going through reviews of very varied committees - many of them of **the best in their respective categories** and resulting in **high citation rates**. Most publications are in journals that are **highly valued in applied engineering**: e.g. IEEE Proceedings, IEEE Trans. on Robotics, IEEE Trans. on Signal Proc., IEEE Trans. on Instrum. and Meas., IEEE Robotics and Autom. Magazine, ... Many of the developed works have given rise to practical electronic systems being object of industrial exploitation (**co-inventor in 11 patents**). The recognition of this activity by the Spanish Nat. Comm. for the Evaluation of Research Activity ends up in the positive evaluation of **four consecutive 6-year-periods of research** (1993-1998, 1999-2001, 2002-2009 and 2010-2015) and **one of transference** (2020). Recently, he applied for funding to **start the Motion Capture Lab** of the University of Alcalá, obtaining a funding of 180.000€. He participated in 2016, as an **expert of the Ministry, in the Tech. Project Comm. of the National R&D Plan** in the area of Comp. Sc. Techn. (TIN).

He has supervised **more than 80 final students' works** in Grades and Masters. He has **supervised or co-supervised up to 19 doctoral theses**, within a doctoral program with a Quality Mention since 2003, **8 of the thesis with European doctorate recognition** and **4 in international co-supervision** (double degree with Univ. Blaise-Pascal [Fr], with Xi'an Technology University [Ch], with Univ. de Tounis El Manar [Tu] and Univ. de La Plata [Ar]. Seven **(7) of the thesis obtained the award for best thesis** in the University of Alcalá. Most of the **former students are involved in research activities** at universities (4 in LatAm, 1 in Asia, 1 in Africa and 9 in Spain, three of them currently as Full Professors).

He **stayed several months in European and Latin-American Centers**: LASMEA at Blaise Pascal Univ. (Fr), Intell. Syst. Centre at Algarve Univ. (Po). He has collaborated with numerous national groups as **coordinator of projects and promotor of the Indoor Positioning and Navigation Network** (REPNIN and REPNIN+) with ten Spanish group. He has been **General chair** in the 5th IEEE Int. Symp. on Intell. Signal Processing - WISP'07, 3rd Workshop on Biomimetic Ultrasound, and in the 7th Int. Conf. on Indoor Positioning and Indoor Navigation (IPIN), held in Alcalá de Henares in 2016. **Member of the IPIN Steering Committee and TPCs** in national and international conferences (I2MTC, VICIMS, ETFA, WISP, ROSE, IPIN, ...). He was **outstanding editor** (2014-2020) and **currently is Associate Editor in Chief** of the journal "IEEE Trans. on Instrum. and Meas.", and **Associate Editor** of "Sensors". **President of the Spanish chapter** of the IEEE Instrum. and Meas. Society.

With his research group, he was awarded **1st Prize of the 11th Ideas Competition for the creation of Technology-Based Companies-UAH**, €3000 (2019) with the company proposal "FragilTec Assistance System"; and **UAH Social Council Award for the Transfer of Knowledge University-Society** for the work "Ambient intelligence for independent living", 18000€ (2019). He continuously collaborates in **dissemination activities to society**, such as Science Week or industry demonstrations. Thanks to his research and academic activity, he has been selected for being **member of research and evaluation panels** in different **national** (UAH, UC3M, EHU, U. Extremadura, UJI, ...) and **international universities** (Tampere U., KU Leuven, Univ. of Singapur, RMIT University, ...) for selecting researchers and academics.

Part C. RELEVANT MERITS (*sorted by typology*)

C.1. Publications (*see instructions*)

1 Scientific paper. José Manuel Villadangos; Jesús Ureña; Juan Jesús García; Ana Jiménez; Álvaro Hernández; María Carmen Pérez o. 2021. Dynamic Adjustment of Weighted GCC-PHAT for Position Estimation in an Ultrasonic Local Positioning System. Sensors. MDPI. 21, 7051, pp.1-25. <https://doi.org/10.3390/s21217051>.



- 2 Scientific paper.** Elena Aparicio-Esteve, Álvaro Hernández, Jesús Ureña. "Design, Calibration and Evaluation of a long-range 3D Infrared Positioning System based on Encoding Techniques. *IEEE Trans. on Instrumentation and Measurm.*, vol. 70, pp. 1-13, 2021. <https://doi.org/10.1109/TIM.2021.3089223>
- 3 Scientific paper.** Elena Aparicio-Esteve; Jesús Ureña; Álvaro Hernández; Daniel Pizarro; David Moltó. "Using Perspective-n-Point algorithms for a Local Positioning System based on LEDs and a QADA receiver". *Sensors* **2021**, 21(19): 6537. <https://doi.org/10.3390/s21196537>.
- 4 Scientific paper.** Pérez-Rubio, M.C.; Ureña, J.; Pérez-Bachiller, S.; Villadangos, J.M.; Hernández, Á.; García, J.J.; Jiménez, A. "LOCATE-US: Indoor Positioning for Mobile Devices Using Encoded Ultrasonic Signals, Inertial Sensors and Graph-Matching", *Sensors* **2021**, 21, 1950. Pp 1-25. <https://doi.org/10.3390/s21061950>.
- 5 Scientific paper.** Elena Aparicio-Esteve, Álvaro Hernández, Jesús Ureña, José M. Villadangos. "Visible Light Positioning System based on a Quadrant Photodiode and Encoding Techniques". *IEEE Transactions on Instrumentation and Measurement*, vol. 69, no. 8, pp. 5589-5603, Aug. **2020**, <https://doi.org/10.1109/TIM.2019.2962563>.
- 6 Scientific paper.** Mannay, Khaoula; Ureña, Jesús; Hernández, Álvaro; Machhout, Mohsen; Aguilí, Taoufik. "Characterization of an Ultrasonic Local Positioning System for 3D Measurements." *Sensors* 20, no. 10: 2794, Pp 1-27, **2020**. <https://doi.org/10.3390/s20102794>.
- 7 Scientific paper.** X. Wei; Y. Yang; J. Ureña; J. Yan; H. Wang. "An Adaptive Peak Detection Method for Inspection of Breakages in Long Rails by Using Barker Coded UGW" *IEEE Access*, vol. 8, pp. 48529-48542, 2020. <https://doi.org/10.1109/ACCESS.2020.2979409>
- 8 Scientific paper.** Martín Colombo; Álvaro Hernández; Jesús Ureña. "Low-Complexity Joint Time Synchronization and Channel Estimation for OFDM-Based PLC Systems. *IEEE Access*. Vol. 7(1), **2019**, Pages: 121446-121456; <https://doi.org/10.1109/ACCESS.2019.2937472>.
- 9 Scientific paper.** Antonio Ruano; Alvaro Hernandez Alonso; Jesus Ureña Ureña; Maria Ruano; Juan Jesus Garcia Dominguez. **2019**. NILM Techniques for Intelligent Home Energy Management and Ambient Assisted Living: A Review *Energies*. MDPI. 12-2203, pp.1-29.
- 10 Scientific paper.** David Gualda, Jesús Ureña, José Alcalá and Carlos Santos. "Calibration of Beacons for Indoor Environments based on a Digital Map and Heuristic Information" *Sensors*, Vol.: 19, Issue:670 Pages: 1-17, January **2019**. <https://doi.org/10.3390/s19030670>.
- 11 Scientific paper.** Jesus Ureña, Álvaro Hernández, Juan Jesús García, José Manuel Villadangos, M. del Carmen Pérez, David Gualda, Fernando Álvarez, Teodoro Aguilera. "Acoustic Local Positioning With Encoded Emission Beacons". *Proceedings of IEEE*, Vol. 106(6), Pages: 1042-1062, June **2018**. <https://doi.org/10.1109/JPROC.2018.2819938>.
- 12 Scientific paper.** F. Espinosa, J. J. García, A. Hernández, M. Mazo, J. Ureña, J. A. Jiménez, I. Fernández, C. Pérez, J.C. García. "Advanced Monitoring of Rail Breakage in Double-Track Railway Lines by means of PCA Techniques Applied Soft Computing". *Applied Soft Comput.*, Volume 63, Feb. **2018**, Pages 1-13. <https://doi.org/10.1016/j.asoc.2017.11.009>.
- 13 Scientific paper.** David Gualda, Jesús Ureña, Juan C. García, Enrique García, José Alcalá. "Simultaneous calibration and navigation (SCAN) of multiple ultrasonic local positioning systems". *Information Fusion*, 45 (**2018**). <https://doi.org/10.1016/j.inffus.2018.01.005>.
- 14 Scientific paper.** Teodoro Aguilera, Fernando Álvarez, David Gualda, José Villadangos, Alvaro Hernandez, Jesús Ureña. "Multipath Compensation Algorithm for TDMA-Based Ultrasonic Local Positioning Systems" *IEEE Transactions on Instrumentation and Measurement*, Vol 67 (5), pp 984-99, Mayo **2018**, <https://doi.org/10.1109/TIM.2018.2794939>.
- 15 Scientific paper.** José Alcalá, Jesús Ureña, Álvaro Hernández, David Gualda. "Sustainable Homecare Monitoring System by Sensing Electricity Data". *IEEE Sensors Journal*, Vol. 17(23), 7741-7749, Dec. **2017**. <https://doi.org/10.1109/JSEN.2017.2713645>.
- 16 Scientific paper.** J. J. García, Á. Hernández, J. Ureña and E. García, "FPGA-Based Architecture for a Multisensory Barrier to Enhance Railway Safety," in *IEEE Trans. on Instrum. and Measur.* 65(6), pp. 1352-1363, June 2016, <https://doi.org/10.1109/TIM.2016.2534238>.
- 17 Scientific paper.** José Alcalá, Jesús Ureña, Álvaro Hernández, D. Gualda. "Event-based Energy Disaggregation Algorithm for Activity Monitoring from a Single-Point Sensor". *IEEE Tr. on Inst. and Meas.* V. 66(10), 2615 – 2626, **2017**. <https://doi.org/10.1109/TIM.2017.2700987>.
- 18 Scientific paper.** Alcalá, J.M.; Ureña, J.; Hernández, Á.; Gualda, D. "Assessing Human Activity in Elderly People Using Non-Intrusive Load Monitoring". *Sensors*, Vol 17 (2), 351, Pp. 1-17, Febrero **2017**. <https://doi.org/10.3390/s17020351>.



- 19 Scientific paper.** F. Espinosa, Á. Hernández, M. Mazo, J. Ureña, M. C. Pérez, J. A. Jiménez, I. Fernández, J. C. García, and J. J. García. "Detector of Electrical Discontinuity of Rails in Double-Track Railway Lines: Electronic Syst. and Meas. Methodology". IEEE Trans. on Intell. Transp. Syst., 18 (4), pp 743 – 755, **2017**. <https://doi.org/10.1109/TITS.2016.2586538>
- 20 Scientific paper.** David Gualda, Jesús Ureña, Enrique García. "Partially Constrained Extended Kalman Filter for Navigation Including Mapping Information". IEEE Sensors Journal, Vol 16, Issue 24, pp 9036 - 9046, Octubre **2016**. <https://doi.org/10.1109/JSEN.2016.2616887>.

C.3. Research projects

- 1 Project.** RTI2018-095168-B-C51, "Local Positioning Systems: Holistic approach from base technologies to the applications (MICROCEBUS)". Ministerio de Ciencia, Innovación y Universidades. Jesús Ureña, IP. (Univ. de Alcalá). 01/01/2019-31/12/2021. 127.171 €.
- 2 Project.** Diseño y desarrollo de un sistema de detección y análisis de la actividad física y pautas de comportamiento para ayuda al diagnóstico de la fragilidad (FrailCheck). Junta de Comunidades de Castilla - La Mancha. Juan Jesús García Domínguez, IP, Jesús Ureña, Research team. (Universidad de Alcalá). 01/09/2018-31/08/2020. 125.630 €.
- 3 Project.** Aplicación de técnicas NILM y redes neuronales al reconocimiento de actividades/rutinas diarias de personas aprovechando las redes inteligentes de energía (2ª Accésit CEI-2018). Jesús Ureña, PI. (Univ. de Alcalá). 07/11/2018-31/12/2019. 4.000 €.
- 4 Project.** TIN2015-71564-C4-1-R, Mejora y robustecimiento de sistemas de localización en interiores para aplicaciones en robótica y asistencia a personas. MINISTERIO DE ECONOMIA Y COMPETITIVIDAD. Jesús Ureña. 01/01/2016-31/12/2018. 106.359 €. Principal investigator.
- 5 Project.** TEC2015-71426-REDT Indoor Positioning and Navigation Network (REPNN). Ministry of Economy and Competitiveness, José Luis Lázaro, IP. Univ. of Alcalá, Univ. Politécnica de Madrid, Univ. de Extremadura, Univ. of Vigo, Univ. of Deusto, Univ. Jaime I, Univ. of Granada, Univ. Oberta de Catalunya. 01/01/2016 to: 31/12/2017. 30.000 €.
- 6 Project.** TIN2012-38080-C04-01, Sistemas Cooperativos de Localización para Personas y Robots Móviles en Entornos Diversos. MINISTERIO DE ECONOMIA Y COMPETITIVIDAD. Jesús Ureña Ureña. 01/01/2013-31/01/2016. 98.935,2 €. Principal investigator.
- 7 Project.** CENIT -2009, Tecnologías para la Gestión Automatizada e Inteligente de las Redes de Distribución Energética del Futuro" (ENERGOS). Ministerio de Ciencia y Tecnología. Entidades participantes: INDRA Sistemas SA, Universidad de Alcalá, Jesús Ureña IP, 01/10/2009 to 31/12/2012. 362.975 € .

C.4. Contracts, technological or transfer merits

- 1 Contract.** Track circuit monitoring system, Financiado por Enyse S.A.U. Ref UAH 59/2021. Participantes: Univ. Alcalá, (10-05-2021 to 10-11-2023). Financiación 453.750 €. Colaborador.
- 2 Contract.** Sistema de Detección Simultánea de Discontinuidad Eléctrica de Raíles en Líneas de Doble Vía -SD3 INABENSA, S.A., Felipe Espinosa. 22/10/2012-22/04/2014. 370.260 €.
- 3 Contract.** Drafting of research reports in the railway transport sector. Art. 83 L.O.U. Kuitver S.L. Participating entities: University of Alcalá. Since: 05/04/2013 until: 04/01/2014. Total amount: 57.000 €. Responsibles: Manuel Mazo and Jesús Ureña .
- 4 Patent.** Inventors: Felipe Espinosa, Manuel Mazo, Jesús Ureña, José Antonio Jiménez, Álvaro Hernández, M^a Carmen Pérez, Ignacio Fernández, Juan Carlos García, J. Jesús García, Juan Carlos Cortés, Raúl Arévalo. Title: System and method for detecting broken rails on a railway line. Reference 15842134.7 – 1810 PCT/ES2015/070656 Priority: ES 15.09.14 / ESA 201431338 Date of filing: 09/09/2015.
Applicant/Proprietor: Instalaciones Inabensa, SA.
- 5 Patent.** Inventors: F. Cruz, F. A. Pinto, M. Blanco, F. J. Reynoso, A. Hernández, J. Ureña.. Title: Método de recepción (desmodulación) de señales multiportadora wavelet-OFDM, correspondientes dispositivos para recibir. Application No: P201400556. N° Publication: ES2556148B2, Country of priority: Spain. Priority date: 21/1/2021. Entity: University of Alcalá
- 6 Patent.** Inventors: J. Ureña, A. Hernández, E. Aparicio, J. M. Villadangos, J. J García, A. Jiménez, M. C. Pérez. Title: High-speed positioning system and procedure with moving LED-type emitters and static quadrant photodiode-type receivers. Application No: P201500540 Country of priority: Spain. Priority date: 22/7/2015. Entity: University of Alcalá