



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	05/12/2021
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First name	Fermín		
Family name	Barrero González		
Gender (*)	Male	Birth date (dd/mm/yyyy)	02/01/1959
Social Security, Passport, ID number	09154814D		
e-mail	fbarrero@unex.es	URL Web peandes.unex.es	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-1863-279X		

(*) Mandatory

A.1. Current position

Position	Profesor Titular de Universidad		
Initial date	22/12/1997		
Institution	UNIVERSITY OF EXTREMADURA		
Department/Center	Electrical, Electronic and Control Engineering	School of Industrial Engineering	
Country	SPAIN	Teleph. number	+34 924 28 96 00
Keywords	Power quality; distributed energy resources; power electronic converters; Smart grids; electric vehicles		

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

Period	Position/Institution/Country/Interruption cause
18/02/1988 - 22/12/1997	Profesor Titular de Escuela Universitaria / Spain / University of Extremadura
01/10/1986 - 18/02/1988	Profesor Numerario de Formación Profesional / Spain / Ministry of Education

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD: Doctor Ingeniero Industrial	Universidad Nacional de Educación a Distancia / SPAIN	1995
Licensed: Ingeniero Industrial	Universidad Politécnica de Madrid / SPAIN	1985

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

Author of more than 50 papers indexed in JCR or SCR, 1 book, 2 co-authored books, several chapters in international research books and more than 60 contributions to international and national conferences. The research topics are focused on Smart Grids, power quality and power electronics converters for photovoltaic plants and electric vehicles. He was member of the Industrial Conversion Committee. European Subcommittee (European Working Group) of IEEE Industry Applications Society, from 1992 to 2000. His PhD thesis was part of one of the first Research Projects developed in Spain related to the application of power electronics to power quality improvement. These contributions led to his founding the research group Power Electrical & Electronic Systems (PE&ES), which he is currently the head. He is co-founder of Smart Energy Products and Services, Spin-off Company of the University of Extremadura,



created from PE&ES group. He has participated in more than 25 research projects under competitive calls, and he has cooperated in more than 15 research contracts with regional and national companies. He has supervised 3 Doctoral Theses and more than 50 Degree/Master Theses. He has 3 six-year research periods recognized by the National Committee for the Assessment of Research Activity (CNEAI), last one 2010-2017, and 1 six-year technological transference period. In 2018 he completed a 6-month research stay at the Centro de Tecnología e Sistemas (Universidade Nova de Lisboa). He also had the position of Director of the School of Industrial Engineering, from 2004 to 2012.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

Authors: PANDO-ACEDO, J.; MILANÉS-MONTERO, M.I.; ROMERO-CADAVAL, E.; BRIZ, F.; BARRERO-GONZÁLEZ, F.; Title: Improved Three-Phase Integrated Charger Converter Connected to Single-Phase Grid with Torque Cancellation, Journal: IEEE Access. Vol: 9. Pp. 108266-108275. DOI: 10.1109/ACCESS.2021.3101942. Year 2021.

Authors: GONZÁLEZ-ROMERA, E.; RONCERO-CLEMENTE, C.; BARRERO-GONZÁLEZ, F.; MILANÉS-MONTERO, M.I.; ROMERO-CADAVAL, E. Title: A Comprehensive Control Strategy for Multibus Nanogrids with Power Exchange Between Prosumers. Journal: IEEE Access. Vol: 9. Pp: 104281-104293. DOI: 10.1109/ACCESS.2021.3099198. Year: 2021.

Authors: RONCERO-CLEMENTE, C.; GONZÁLEZ-ROMERA, E.; BARRERO-GONZÁLEZ, F.; MILANÉS-MONTERO, M.I.; ROMERO-CADAVAL, E. Title: Power-flow-based Secondary Control for Autonomous Droop-controlled AC Nanogrids with Peer-to-Peer Energy Trading. Journal: IEEE Access. Vol: 9. Pp:22339-22350. DOI: 10.1109/ACCESS.2021.3056451. Year: 2021.

Authors: RONCERO-CLEMENTE, C.; ROANES-LOZANO, E.; BARRERO-GONZÁLEZ, F. Title: A Multi-Criteria Computer Package-Based Energy Management System for a Grid-Connected AC Nanogrid. Journal: Mathematics. Pp: 9, 487. DOI 10.3390/math9050487. Year: 2021.

Authors: BARRERO-GONZÁLEZ, F.; RONCERO-CLEMENTE, C.; MILANÉS-MONTERO, M.I.; GONZÁLEZ-ROMERA, E.; ROMERO-CADAVAL, E.; HUSEV, O.; PIRES, V.F. Title: Improvements on the Carrier-Based Control Method for a Three-Level T-Type, Quasi-Impedance-Source Inverter. Journal: Electronics, Pp: 8, 677. DOI: 10.3390/electronics8060677. Year: 2019.

Authors: RUIZ-CORTÉS, M.; GONZÁLEZ-ROMERA, E.; AMARAL-LOPES, R.; ROMERO-CADAVAL, E.; MARTINS, J.; MILANÉS-MONTERO, M.I.; BARRERO-GONZÁLEZ, F. Title: Optimal Charge/Discharge Scheduling of Batteries in Microgrids of Prosumers". Journal: IEEE Transactions on Energy Conversion. Vol: 34. No: 1. Pp: 468-477. Year: 2019.

Authors: MILANÉS-MONTERO, M.I.; BARRERO-GONZÁLEZ, F.; PANDO-ACEDO, J.; GONZÁLEZ-ROMERA, E.; ROMERO-CADAVAL, E.; MORENO-MUÑOZ, A. Title: Smart community electric energy micro-storage systems with active functions. Journal: IEEE Transactions on Industry Applications. Vol: 54. No: 3. Pp: 1975-1982. Year: 2018.

Authors: MIÑAMBRES-MARCOS, V.M.; GUERRERO-MARTÍNEZ, M.Á.; BARRERO-GONZÁLEZ, F.; M.I. MILANÉS-MONTERO MILANÉS-MONTERO, M.I. Title: A grid connected photovoltaic inverter with battery-supercapacitor hybrid energy storage. Journal: Sensors 17 – 8. Year: 2017.



Authors: GUERRERO-MARTÍNEZ, M.A.; MILANÉS-MONTERO, M.I.; BARRERO-GONZÁLEZ, F.; MIÑAMBRES-MARCOS, V.; ROMERO-CADAVAL, E.; GONZÁLEZ-ROMERA, E. Title: A smart power electronic multiconverter for the residential sector. Journal: Sensors. Vol: 17. Pages: 1-17. Year: 2017.

Authors: MILANÉS-MONTERO, M.I.; BARRERO-GONZÁLEZ, F.; PANDO-ACEDO, J.; GONZÁLEZ-ROMERA, E.; ROMERO-CADAVAL, E.; MORENO-MUÑOZ, A. Title: Active, reactive and harmonic control for distributed energy micro-storage systems in smart communities homes. Journal: Energies. Vol: 10(448). Pages: 1-11. Year: 2017.

C.2. Congress

Authors: Sánchez-Cruz, S.; Romero-Cadaval, E.; Montes Cabrera, B.; González Romera, E.; Milanés Montero, M.I.; Barrero González, F. "Modulation strategy and control of Modular Cascade H-Bridge Converters as Input-side of a Multi-port Smart Transformer. Oral presentation. 2021 22nd IEEE International Conference on Industrial Technology (ICIT), Valencia (Spain), 10-12 March 2021.

Authors: C. Roncero-Clemente, O. Husev, F. Barrero-González, E. González-Romera, M.I. Milanés-Montero and E. Romero-Cadaval. Title: Grid-Connected Three-Phase 3L-T-type qZS Inverter for Renewable Energy. Oral presentation. 2020 IEEE 14th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG). Setúbal (Portugal). 8-10 July 2020.

Authors: E. Romero-Cadaval, C. Roncero-Clemente, F. Barrero-González, E. González-Romera, M.I. Milanés-Montero and S. Sánchez-Cruz. Title: Analysis of Bidirectional Buck/Boost Converter for Energy Storage System. Oral presentation. IECON 2019 – 45th Annual Conference of the IEEE Industrial Electronics Society. Lisbon (Portugal). 14-17 Oct 2019.

Authors: M. Ruiz-Cortés, E. González-Romera, R. Amaral-Lopes, E. Romero-Cadaval, J. Martins, M.I. Milanés-Montero and F. Barrero-González. Title: Improved Forecasting-Based Battery Energy Management Strategy for Prosumer Systems. Oral presentation. IECON 2018 – 44th Annual Conference of the IEEE Industrial Electronics Society. Washington (EE.UU.). 2018.

Authors: Barrero-González, F. ;Miñambres-Marcos, V. ;Guerrero-Martínez, M. ;Romero-Cadaval, E. ;Milanes-Montero, M. ;González-Romera, E. Title: Photovoltaic inverter with smart grid functions. Oral presentation. 2016 IEEE 16th International Conference on Environment and Electrical Engineering (EEEIC), Florence (Italy), 2016.

C.3. Research projects

ETN 955614: "Research and Training Network for Smart and Green Energy Systems and Business Models (SMARTGYsum)". Supported by: Marie Skłodowska-Curie Actions (MSCA) Innovative Training Networks (ITN). H2020-MSCA-ITN-2020. From 01/10/21 to 30/09/24. Participation as researcher. Leader: Enrique Romero Cadaval (University of Extremadura).

TEC2016-77632-C3-1-R: "Control y gestión de nanorredes aislables: Estrategias de control para nanorredes aislables". Supported by: Ministerio de Economía y Competitividad. Convocatoria 2016, Programa estatal de fomento de la investigación científica y técnica de excelencia, Subprograma de generación del conocimiento. I+D+i Orientada a los Retos de la Sociedad. From 27/09/16 to 26/09/19. Participation as researcher. Leader: Eva González Romera (University of Extremadura).



TEC2013-47316-C3-3-P: "Sistema de gestión energética de una comunidad inteligente: sistema de microalmacenamiento híbrido". Supported by: Ministerio de Economía y Competitividad. Convocatoria 2013, modalidad 1: Proyectos de I+D, del Programa estatal de fomento de la investigación científica y técnica de excelencia, Subprograma de generación del conocimiento. From 28/06/14 to 28/06/17. Participation as researcher. Leader: Maribel Milanés Montero.

IB13071: "Sistema de almacenamiento híbrido para hacer gestionables las instalaciones de generación fotovoltaica". Supported by: Gobierno de Extremadura. Convocatoria de ayudas destinadas a la realización de proyectos de investigación en los Centros Públicos de I+D+i de la Comunidad Autónoma de Extremadura para el ejercicio económico 2013. From 22/05/14 to 22/05/16. Participation as leader.

PCJ100401: "Evaluación del funcionamiento de plantas fotovoltaicas. Subproyecto de evaluación del funcionamiento de inversores fotovoltaicos y diagnóstico de problemas de conexión a red". Supported by: Gobierno de Extremadura y FEDER. Convocatoria de ayudas para proyectos de cooperación, en sectores estratégicos, entre grupos de investigación y empresas. From 05/10/11 to 05/10/15. Participation as leader.

ENE2010-12230-E: "Red temática sobre monitorización y análisis de la calidad de la red eléctrica con elevada presencia de generación distribuida". Supported by Ministerio de Ciencia e Innovación. Subprograma de acciones complementarias a proyectos de investigación fundamental no orientada 2010. From 21/07/11 to 20/07/12. Participation as leader.

TEC2010-19242-C03: "SIDER: Inversor Inteligente para Fuentes de Generación Distribuida". Supported by: Ministerio de Ciencia e Innovación. Convocatoria de ayudas del Plan Nacional de I+D+i 2008-2011. Subprograma de Proyectos de Investigación Fundamental. From 21/02/11 to 31/12/13. Participation as researcher. Leader: Enrique Romero Cadaval (University of Extremadura).

C.4. Contracts, technological or transfer merits

Title: Investigación y desarrollo, dentro del proyecto "Proyecto EMÚ® investigación industrial y desarrollo experimental. Supported by: ELECTRIZACIÓN PARA EL MOVIMIENTO URBANO, S.L. Period: 19/11/2019-30/10/2021. Leader: Enrique Romero Cadaval. Number of researchers: 4. Budget: 9.000 euros.

Title: Investigación y apoyo al desarrollo, dentro del proyecto "Algoritmos, sensorización y control embebido para la optimización de bombeos solares". Supported by: TXT INGENIERIA, S.L. Period: 19/11/2019-30/10/2021. Leader: Enrique Romero Cadaval. Number of researchers: 4. Budget: 15.000 euros.

Title: Análisis y diseño de sistemas de gestión energética en red de distribución rural. Supported by: Eléctricas Pitarch Distribución S.L.U. Period: 22/12/2019 - 21/12/2021. Leader: Agustín García García. Number of researchers: 11. Budget: 45000 euros.

Title: Investigación de sistemas de recarga de sensores a partir de energía ambiental para la autonomía energética total de redes de sensores empleando el concepto "Energy Harvesting" (GlobalEnergy). Supported by: ELABOREX Calidad en la Construcción S.L. Period: 02/02/2017 - 02/02/2019. Leader: Enrique Romero Cadaval. Number of researchers: 4. Budget: 40000 euros.