CURRÍCULUM VÍTAE NORMALIZADO

Alba Rodríguez Lorente

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GOBIERNO DE ESPAÑA
MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

FECYT INNOVACIÓN

Summary of CV

This section describes briefly a summary of your career in science, academic and research; the main scientific and technological achievements and goals in your line of research in the medium -and long- term. It also includes other important aspects or peculiarities.

After completing the Bachelor's degree in Industrial Electronics and Automation Engineering in 2014 at Universidad Carlos III de Madrid (UC3M), I finished the Final Degree Project (TFG) with honors. In the academic year 2015/16 I take part in the first promotion of the Master in Electronic Systems and Applications at the same university, which I finish with an average grade of 8.35. I enjoyed this period with a scholarship for the Study of University Master by which I teach associated with the Department of Electronic Technology. Later, I am part of the first academic committee of this master's. Both the Bachelor's and the Master's Final Projects were in the framework of Help for Disability in the GDAF (Displays and Photonic Applications) in collaboration with the Hospital San Rafael de Madrid. From 2017 to 2021 I do my Ph.D. at UC3M in the research group GSEP (Power Electronic Systems) in the Ph.D. Program of Electrical, Electronics, and Automation, obtaining a grade of outstanding cum-laude and international mention for the thesis called "Analysis, design, and optimization of bidirectional DC-DC converter reducer-elevator with magnetic coupling". The converter of the thesis is the subject of a patent. During the doctorate, I spend 4 months at the Università degli Studi di Padova. During this period: - I publish a total of 3 journal articles (2Q1 + Q2) and a last one under review. - I participate in 11 congresses: 6 international, 4 national, and in a symposium in Estonia where I was awarded the prize for the best presentation. - I collaborate on 5 research projects in the field of power electronics, financed with both public and private funds. - I develop teaching material for courses given to companies and I develop a manual for the use of Advanced Design Systems software for use by undergraduate and master students, in the Electromagnetic Compatibility course. - I develop Matlab applications for the design of converters and magnetic components, currently in use in the designs of the group. - In the 2018/19 academic year I am granted a Venia Docendi from the department for which I teach laboratory in undergraduate subjects. From January 2020 to December 2021 I am hired part-time by the company Power Smart Control SL, where I design control solutions and optimization of power converters for private companies, and I am in charge of the theoretical development of the update of the Smart Control Software tool.

I start my teaching career in the Electronics Department of the Universidad Rey Juan Carlos in Decembe3 2021. To Jaunuary 2024, six journal papers' have been released (3Q1 + 2Q2 + Q3), two conference paper have been added and I've participate in two privately funded research projects in the field of converter modeling and control.B.1. Breve descripción del Trabajo de Fin de Grado (TFG) y puntuación obtenida The final degree project is carried out in collaboration with the Special Education School associated with the San Rafael Hospital in Madrid.

The project consists of the design and construction of an aid to dependency in the form of a game for students, intending to stimulate their cause-effect perception. For this purpose, a game is designed and built consisting of a controller and a panel with moving parts and visual and auditory stimuli that interact with the player creating different games.

The score obtained was 10.B.2. Breve descripción del Trabajo de Fin de Máster (TFM) y puntuación obtenida The master's degree final project is carried out in collaboration with the Special Education School associated with the San Rafael Hospital in Madrid.
The project consists of the design and construction of an aid to dependency in the form of a game for students, intending to stimulate their cause-effect perception. To this end, a collaborative game and its interface are designed and built, capable of recognizing contact between participants and using it to generate auditory and visual responses at the request of the center.

The score obtained was 9.25.

General quality indicators of scientific research

This section describes briefly the main quality indicators of scientific production (periods of research activity, experience in supervising doctoral theses, total citations, articles in journals of the first quartile, H index...). It also includes other important aspects or peculiarities.

The field of Power Electronics promises to be interesting from a research point of view linked to the development of electric transport and the efficient use of renewable energies. In this regard, 6 journal articles have been published (3Q1 + 2Q2 + Q3) until 2024. The research carried out has allowed me to participate in a total of 13 congresses (8 international, 5 national). Also, a 4-month stay at the Università degli studi di Padova.

To highlight, I have participated in the innovations on a new bidirectional DC-DC converter topology (which gives body to a patent), with the proposal of a multivariable control strategy that optimizes the operation of this converter, susceptible to be used in related proposals. Also, I have proposed new modeling equations for the magnetic flux dispersion in integrated magnetic components.

Also noteworthy is the leadership and training activity, as I was in charge of master's and bachelor's students collaborating with the research group. In addition, the converter and magnetic component design algorithms I developed are used by teachers and students at the Universidad Carlos III de Madrid.

From the industrial point of view, power electronics is essential as a link between electrical engineering applications and electronics. In this regard, I have participate in many projects in collaboration with companies (health, transport, telecommunications) seeking to develop their products and improve their performance by focusing on the power stage. In addition to a part-time contract with the company Power Smart Control SL where I contribute to the design of control solutions and optimization of power converters and I am part of the development team of the software tool "Smart control" sold as a plug-in to the well-known simulation software PSIM (for private use and also in the university by researchers and students).

Alba Rodríguez Lorente

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Date of birth:	**01/11/1991**
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Country of birth:	**Spain**
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Current professional situation

Employing entity: Universidad Rey Juan Carlos
Professional category: Assistant professor
Start date: 11/04/2023
Type of contract: Temporary employment contract **Dedication regime:** Full time

Employing entity: Universidad Rey Juan Carlos
Professional category: Visiting professor
Start date: 01/12/2021
Type of contract: Temporary employment contract **Dedication regime:** Full time
Primary (UNESCO code): 330703 - Circuit design; 330706 - Filter design; 330714 - Semi-conductor devices; 330719 - Transistors
Secondary (UNESCO code): 330601 - Direct current power utilization; 330602 - Electricity applications; 330608 - Switchgear
Performed tasks: Teaching in various undergraduate courses in the field of electrical engineering and power electronics. Research in related projects
Identify key words: Advanced control of converters of potency; Modeled of reactive elements in electronic converters; Modeled of electronic converters of power; Electronic converters for distribution of electrical energy; Electric energy transportation; Transformation of the electirc energy

Previous positions and activities

	Employing entity	Professional category	Start date
1	Power Smart Control SL	Developing engineering	20/01/2020
2	Universidad Carlos III de Madrid	Project-based researcher	01/01/2019
3	Universidad Carlos III de Madrid	Project-based research fellow	

1 **Employing entity:** Power Smart Control SL **Type of entity:** Business
Professional category: Developing engineering
Start-End date: 20/01/2020 - 30/11/2021 **Duration:** 22 months
Type of contract: Temporary employment contract
Performed tasks: Design of control solutions and optimization of power converters for projects with private companies. Updating of software tool "Smart control" with new power topologies

2 **Employing entity:** Universidad Carlos III de Madrid **Type of entity:** University
Department: Tecnología electrónica
Professional category: Project-based researcher
Start-End date: 01/01/2019 - 30/11/2021 **Duration:** 23 months
Type of contract: Temporary employment contract
Performed tasks: Design of electronic systems, sizing of converters, design and construction of magnetic components.

3 **Employing entity:** Universidad Carlos III de Madrid **Type of entity:** University
Professional category: Project-based research fellow
Duration: 3 years

Education

University education

1st and 2nd cycle studies and pre-Bologna degrees

1 **Name of qualification:** Master's Degree in Electronic Systems and Applications Engineering
Degree awarding entity: Universidad Carlos III de Madrid **Type of entity:** University
Date of qualification: 26/09/2015

2 **University degree:** Higher degree
Name of qualification: Graduate in Industrial Electronics and Automation Engineering
Degree awarding entity: Universidad Carlos III de Madrid **Type of entity:** University
Date of qualification: 09/07/2014

Doctorates

Doctorate programme: Electrical, Electronics and Automation
Degree awarding entity: Universidad Carlos III de Madrid **Type of entity:** University
Date of degree: 30/09/2021
European doctorate: Yes **Date of certificate:** 30/09/2021
Thesis title: Análisis, diseño y optimización del convertidor CC-CC bidireccional reductor-elevador con acoplamiento magnético
Thesis director: Andrés Barrado Bautista
Obtained qualification: Sobresaliente Cum Laude

Language skills

Language	Listening skills	Reading skills	Spoken interaction	Speaking skills	Writing skills
Italian	B2	B2	B2	B2	B1
English	C1	C1	B2	C1	C1

Teaching experience

General teaching experience

1 **Name of the course:** Electronics Technology
Type of teaching: Laboratory work
University degree: Bachelor's degree in Industrial Technologies
Start date: 19/09/2022 **End date:** 17/01/2023
Type of hours/ ECTS credits: Credits
Hours/ECTS credits: 36
Entity: Universidad Rey Juan Carlos **Type of entity:** University
Faculty, institute or centre: Escuela Superior de Ciencias Experimentales y Tecnología

2 **Name of the course:** Electrical machines
University degree: Bachelor's Degree in Industrial Electronic and Automatic Engineering
Start date: 19/09/2022 **End date:** 09/01/2023
Entity: Universidad Rey Juan Carlos **Type of entity:** University
Faculty, institute or centre: Escuela Superior de Ciencias Experimentales y Tecnología

3 **Name of the course:** Analog Electronics
Type of teaching: Laboratory work
University degree: Bachelor's Degree in Electronic, Industrial and Automation Engineering
Course given: 2
End date: 2022
Type of hours/ ECTS credits: Credits
Hours/ECTS credits: 20
Entity: Universidad Rey Juan Carlos **Type of entity:** University

4 **Name of the course:** Basic legal principles
University degree: Bachelor's Degree in Electronic, Industrial and Automation Engineering
Course given: 1
End date: 2022
Type of hours/ ECTS credits: Credits
Hours/ECTS credits: 10
Entity: Universidad Rey Juan Carlos **Type of entity:** University

5 **Name of the course:** Electrical Engineering
Type of teaching: In person theory
University degree: Bachelor's degree in Industrial Technology Engineering
Course given: 2
End date: 2022
Type of hours/ ECTS credits: Credits
Hours/ECTS credits: 65
Entity: Universidad Rey Juan Carlos **Type of entity:** University
Mark obtained: 4.1 **Top mark possible:** 5

6 **Name of the course:** Fundamentos de ingeniería eléctrica
Type of teaching: In person theory
University degree: Bachelor's Degree in Industrial Electronics and Automation Engineering
Course given: 2
End date: 2022

Type of hours/ ECTS credits: Credits
Hours/ECTS credits: 38
Entity: Universidad Rey Juan Carlos
Type of entity: University
Mark obtained: 4.6
Top mark possible: 5

7 **Name of the course:** Power Electronics
Type of teaching: Laboratory work
University degree: Bachelor's Degree in Electronic, Industrial and Automation Engineering
Course given: 3
End date: 2022
Type of hours/ ECTS credits: Credits
Hours/ECTS credits: 24
Entity: Universidad Rey Juan Carlos
Type of entity: University

8 **Name of the course:** Tecnología Eléctrica y Electrónica
Type of teaching: In person theory
University degree: Bachelor's or Graduate Degree in Energy Engineering
Course given: 3
End date: 2022
Type of hours/ ECTS credits: Credits
Hours/ECTS credits: 84
Entity: Universidad Rey Juan Carlos
Type of entity: University
Mark obtained: 4.2
Top mark possible: 5

9 **Name of the course:** Power Electronics
Assessment type: Survey
University degree: Bachelor's Degree in Electronic, Industrial and Automation Engineering
Course given: 3
End date: 2019
Type of hours/ ECTS credits: Credits
Hours/ECTS credits: 8
Entity: Universidad Carlos III de Madrid
Type of entity: University
Assessment type: Survey
Mark obtained: 4.43
Top mark possible: 5

10 **Name of the course:** Digital Electronics
Type of teaching: Laboratory work
University degree: Bachelor's Degree in Audiovisual Systems Engineering
Course given: 1
End date: 2019
Type of hours/ ECTS credits: Credits
Hours/ECTS credits: 20
Entity: Universidad Carlos III de Madrid
Mark obtained: 4.69
Top mark possible: 5

11 **Name of the course:** Analog Electronics
Type of teaching: Laboratory work
University degree: Bachelor's Degree in Industrial Electronics and Automation Engineering
Course given: 3
End date: 2015
Type of hours/ ECTS credits: Credits

Hours/ECTS credits: 10
Entity: Universidad Carlos III de Madrid **Type of entity:** University

12 **Name of the course:** Computer technology
Type of teaching: Laboratory work
University degree: Bachelor's Degree in Computer Engineering
End date: 2015
Type of hours/ ECTS credits: Credits
Hours/ECTS credits: 4
Entity: Universidad Carlos III de Madrid **Type of entity:** University

13 **Name of the course:** Computer technology
Type of teaching: Laboratory work
University degree: Bachelor's Degree in Electronic, Industrial and Automation Engineering
End date: 2015
Type of hours/ ECTS credits: Credits
Hours/ECTS credits: 4
Entity: Universidad Carlos III de Madrid **Type of entity:** University

14 **Name of the course:** Fundamentals of Electronic Engineering
Type of teaching: Laboratory work
Assessment type: Survey
University degree: Bachelor's Degree in Industrial Electronic and Automatic Engineering
End date: 2015
Type of hours/ ECTS credits: Credits
Hours/ECTS credits: 10
Entity: Universidad Carlos III de Madrid **Type of entity:** University
Assessment type: Survey
Mark obtained: 4.33 **Top mark possible:** 5
Subject language: English

15 **Name of the course:** Measuring Instrumentation
Type of teaching: Laboratory work
University degree: Bachelor's Degree in Biomedical Engineering
Course given: 3
End date: 2015
Type of hours/ ECTS credits: Credits
Hours/ECTS credits: 15
Entity: Universidad Carlos III de Madrid **Type of entity:** University
Subject language: English

Teaching experience in courses and seminars for university teacher training

Type of event: Seminar
Name of the event: Expo proyectos integradores de ingeniería electrónica internacional
Organising entity: Instituto tecnológico superior del sur de Guanajuato
Hours of teaching: 1
Teaching date: 23/11/2022

Participation in innovative teaching projects

Project title: Fomento de adquisición de las competencias específicas del Grado en Ingeniería Electrónica Industrial y Atomática y el Grado en Ingeniería de Tecnologías Industriales y el Máster Universitario en Ingeniería Industrial a través de la coordinación transversal entre asignaturas: aplicación al control de máquinas eléctricas
Type of participation: Team member
Time of working relationship: For an undetermined time
Funding entity: Universidad Rey Juan Carlos **Type of entity:** University
Start-End date: 13/09/2022 - 13/09/2023 **Duration:** 1 year

Other activities/achievements not included above

1 **Description of the activity:** Coordination of the 1st year of the Bachelor's Degree in Industrial Electronics and Automation Engineering.
Organising entity: Universidad Rey Juan Carlos **Type of entity:** University
End date: 01/08/2024

2 **Description of the activity:** Coordination of the 2nd year of the Bachelor's Degree in Industrial Electronics and Automation Engineering.
Organising entity: Universidad Rey Juan Carlos **Type of entity:** University
End date: 05/07/2023

Scientific and technological experience

Scientific or technological activities

R&D projects funded through competitive calls of public or private entities

1 **Name of the project:** Control de Convertidores Conectados a Red por Modelos Predictivos implementados en FPGA
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): César A. Limones Pozos; Ángel de Castro Martín; Joaquín Vaquero López; Alberto Sánchez González; Alba Rodríguez Lorente; Javier Garrido Salas; M. Sofía Martínez García; Nimrod Vázquez Nava; Elyas Zamiri; Leonel Estrada Rojo; Marina Yushkova
Nº of researchers: 11
Start-End date: 02/10/2023 - 30/09/2026
Total amount: 53.150 €

2 **Name of the project:** SISTEMA DE DISTRIBUCION DE ENERGÍA ELÉCTRICA PARA DRONES PROPULSADOS CON HIDRÓGENO
Entity where project took place: Universidad Carlos III de Madrid **Type of entity:** University
Start-End date: 01/07/2021 - 01/07/2024

3 **Name of the project:** Adquisición de un equipo completo de desarrollo (Tech-MCS 16 IMUs + Batería Extendida + Trigger , Kit de evaluación Zynq UltraScale+ MPSoC ZCU102, equipamiento informático de alto rendimiento (PC Sobremesa y portátil)), procesamiento, medida y validación basado en sensores inerciales de alta precisión para adquisición de datos de la marcha humana y así abordar la mejora en la interacción física entre el hombre y el exoesqueleto. Se proporciona un equipamiento importante al grupo de investigación para desarrollar líneas de investigación relacionadas con la mejora de la rehabilitación y tratamientos con pacientes con patologías neurológicas.

Entity where project took place: Universidad Rey Juan Carlos **Type of entity:** University

City of entity: Móstoles, Community of Madrid, Spain

Name principal investigator (PI, Co-PI....): Rubén Nieto Capuchino; Gonzalo del Pozo Melero; Imene Yahyaoui; Enrique Hernández Balaguera; Alexander Cuadrado Conde; David Casillas Pérez; Borja Rodríguez Vila; Alba Rodríguez Lorente; Juan Alejandro Castaño Peña; Julio Salvador Lora Millán; Verónica García Vázquez

Nº of researchers: 11

Start-End date: 01/01/2023 - 30/06/2023

Total amount: 25.599,76 €

4 **Name of the project:** ELECTRA: Electric Aircraft Platform

City of entity: Universidad Carlos III de Madrid,

Funding entity or bodies:

Ministerio de ciencia, innovación y universidades **Type of entity:** Public Research Body

Start-End date: 01/09/2018 - 30/11/2021

Applicant's contribution: Diseño de la etapa de potencia, control y dimensionamiento del cargador de baterías interno (convertidor reductor-elevador bidireccional) y externo (convertidor resonante LLC) de un avión híbrido. También en la parte de diseño, optimización y montaje de componentes magnéticos y montaje del prototipo final.

5 **Name of the project:** Estrategias de modelado y control para la estabilización de la InterCONEXión de convertidores electrónicos de POTencia

Entity where project took place: Universidad Carlos III de Madrid **Type of entity:** University

Name principal investigator (PI, Co-PI....): Lázaro Blanco; Sanz García

Funding entity or bodies:

MINISTERIO DE ASUNTOS ECONÓMICOS Y TRANSFORMACIÓN DIGITAL **Type of entity:** Public Research Body

Start-End date: 01/01/2018 - 30/09/2021

Applicant's contribution: Diseño y simulación de las topologías participantes

6 **Name of the project:** Sistema de almacenamiento y gestión de la energía para coche eléctrico híbrido basado en pila de combustible, batería y supercondensadores

Entity where project took place: Universidad Carlos III de Madrid **Type of entity:** University

Nº of researchers: 7

Funding entity or bodies:

MINISTERIO DE ASUNTOS ECONÓMICOS Y TRANSFORMACIÓN DIGITAL **Type of entity:** Public Research Body

Start-End date: 01/01/2015 - 30/06/2018

Applicant's contribution: Desarrollo de software específico (programas de diseño y optimización de componentes magnéticos), dimensionamiento del sistema, estudio teórico de las topologías CC-CC participantes, aporte de una topología nueva reductora-elevadora, colaboración en tareas de diseño de PCB y montaje de prototipos

R&D non-competitive contracts, agreements or projects with public or private entities

1 **Name of the project:** Ayuda al desarrollo y optimización de convertidores CC-CC para el software de diseño de sistemas electrónicos de potencia SmartControl
Degree of contribution: Researcher
Name principal investigator (PI, Co-PI....): Alba Rodríguez Lorente; Joaquín Vaquero
Nº of researchers: 2
Funding entity or bodies:
Power Smart Control SL
Type of entity: Business
Start date: 02/05/2022
Duration: 9 months
Total amount: 8.000 €

2 **Name of the project:** CONtroles Avanzados para convertidores Bidireccionales (CONABI)
Degree of contribution: Researcher
Name principal investigator (PI, Co-PI....): Joaquín López; Alba Rodríguez Lorente
Nº of researchers: 7
Funding entity or bodies:
ARQUIMEA AEROSPACE, DEFENCE AND SECURITY S.L.U.
Type of entity: Business
Start date: 03/01/2022
Duration: 1 year
Total amount: 53.150 €

3 **Name of the project:** Convertidor CC-CC resonante de calefacción para equipos portátiles de rayos X, según Pedido nº2701059044
Degree of contribution: Technician
Name principal investigator (PI, Co-PI....): Barrado Bautista; Zúmel Vaquero
Nº of researchers: 9
Funding entity or bodies:
SIEMENS HEALTHCARE, S.L.U,
Type of entity: Business
Start date: 20/11/2017
Duration: 8 months

4 **Name of the project:** Convertidor CC-CC Resonante de 30kW y 40kV-130kV para Equipos Portátiles de Rayos X
Degree of contribution: Technician
Name principal investigator (PI, Co-PI....): Barrado Bautista; Zúmel Vaquero
Nº of researchers: 10
Funding entity or bodies:
SIEMENS HEALTHCARE, S.L.U,
Type of entity: Business
Start date: 19/02/2016
Duration: 9 months

5 **Name of the project:** Convertidor CA-CC de elevado rendimiento basado en SIC para transmisores de TV y RADIO
Degree of contribution: Technician
Name principal investigator (PI, Co-PI....): Barrado Bautista; Lázaro Blanco
Nº of researchers: 9
Funding entity or bodies:
BTESA BROAD TELECOM
Type of entity: Business

Start date: 01/09/2014 **Duration:** 34 months

Scientific and technological activities

Scientific production

Publications, scientific and technical documents

1 Helder R.O. Rocha; Rodrigo Fiorotti; Jussara F. Fardin; Hilel García Pereira; Yann E. Yann E. Bouvier; Alba Rodríguez Lorente; Imene Yahyaoui. Application of AI for Short-Term PV Generation Forecast. Sensors. 24 - 85, pp. 1 - 16. MDPI, 23/12/2023.
Type of production: Scientific paper **Format:** Journal
Corresponding author: No

2 Alba Rodríguez Lorente; Andrés Barrado Bautista; Giorgio Spiazzi; Paolo Mattavelli; Jaime López López; Antonio Lázaro Blanco. A novel window reluctance calculation to improve leakage inductance estimation of "E3E" Integrated Magnetic Components. Transactions on Industrial Electronics. IEEE, 2022. ISSN 1557-9948
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes

3 Alba Rodríguez Lorente; Andrés Barrado Bautista; Antonio Lázaro Blanco; Carlos Calderon Benavente; Pablo Zúmel Vaquero. Magnetically Coupled Buck-Boost Bidirectional DC-DC Converter. Transactions on Industrial Electronics. 68, pp. 9493 - 9504. IEEE, 2020.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes

4 Alba Rodríguez Lorente; Andrés Barrado Bautista; Carlos Calderon Benavente; Antonio Lázaro Blanco. Non-Inverting and Non-Isolated Magnetically Coupled Buck-Boost Bidirectional DC-DC Converter. Transactions on Power Electronics. 35, pp. 11942 - 11954. IEEE, 2020.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes

5 Carlos Calderon Benavente; Andrés Barrado Bautista; Alba Rodríguez Lorente; Pedro Alou; Antonio Lázaro Blanco; Cristina Fernández Herrero; Pablo Zúmel Vaquero. General Analysis of Switching Modes in a Dual Active Bridge with Triple Phase Shift Modulation. Energies. 11, MDPI, 2018.
Type of production: Scientific paper
Corresponding author: No

6 Leonel Estrada; Joaquín Vaquero; Alba Rodríguez-Lorente; Jaime Arau; Angel de Castro; Alberto Sánchez; Nimrod Vázquez. Asynchronous and decoupled HIL simulation of a DC nanogrid. Electronics.
Type of production: Scientific paper

Works submitted to national or international conferences

1 **Title of the work:** Optimización del Convertidor CC-CC Reductor-Elevador Bidireccional con Acoplamiento Magnético no-ideal
Name of the conference: Seminario Anual de Automática, Electrónica industrial e Instrumentación
Corresponding author: Yes
City of event: Sevilla, Andalusia, Spain
Date of event: 05/07/2023
End date: 07/07/2023
Organising entity: Universidad de Sevilla **Type of entity:** University
City organizing entity: Sevilla, Andalusia, Spain
Alba Rodríguez Lorente; Andrés Barrado Bautista.

2 **Title of the work:** Optimization of Bidirectional DC-DC Buck-Boost Converter with Non-ideal Magnetic Coupling
Name of the conference: 2023 International Conference on Clean Electrical Power (ICCEP)
Corresponding author: Yes
City of event: Terrasini, Italy
Date of event: 27/06/2023
End date: 29/06/2023
Organising entity: Politecnico di Milano
Alba Rodríguez Lorente; Andrés Barrado Bautista. "Optimization of Bidirectional DC-DC Buck-Boost Converter with Non-ideal Magnetic Coupling".

3 **Title of the work:** High efficiency capacitive power transfer converter
Name of the conference: 2018 IEEE Applied Power Electronics Conference and Exposition (APEC)
Corresponding author: No
City of event: San Antonio, TX,, United States of America
Date of event: 2018
Jaime López López; Carlos Salto; Pablo Zúmel Vaquero; Cristina Fernández Herrero.

4 **Title of the work:** Modified Dual Active Bridge Bidirectional Converter
Name of the conference: International Symposium "Topical Problems in the Field of Electrical and Power Engineering"
Corresponding author: Yes
City of event: Kuressaare, Estonia
Date of event: 2018
Organising entity: Tallin University of Technology
Alba Rodríguez Lorente; Andrés Barrado Bautista; Carlos Calderon Benavente; Antonio Lázaro Blanco; Pablo Zúmel Vaquero; Cristina Fernández Herrero.

5 **Title of the work:** Convertidor CC-CC bidireccional de doble Puente Activo (MDAB)
Name of the conference: Seminario Anual de Automática, Electrónica Industrial e Instrumentación
Corresponding author: Yes
City of event: Valencia, Spain
Date of event: 2017
Organising entity: Universitat de València
Alba Rodríguez Lorente; Andrés Barrado Bautista; Carlos Calderon Benavente; Pablo Zúmel Vaquero; Antonio Lázaro Blanco.

6 **Title of the work:** Dual Active Bridge (TPS - DAB) with Soft Switching in the whole output power range
Name of the conference: IEEE CPE-POWERENG 2017
Corresponding author: No
City of event: Cádiz, Spain
Date of event: 2017
Carlos Calderon Benavente; Andrés Barrado Bautista; Alba Rodríguez Lorente; Antonio Lázaro Blanco; Cristina Fernández Herrero; Pablo Zúmez Vaquero.

7 **Title of the work:** Dual Active Bridge with triple phase shift by obtaining soft switching in all operating range
Name of the conference: 2017 IEEE Energy Conversion Congress and Exposition (ECCE)
Corresponding author: No
Date of event: 2017
City organizing entity: Cincinnati, United States of America
Carlos Calderon Benavente; Andrés Barrado Bautista; Alba Rodríguez Lorente; Antonio Lázaro Blanco; Cristina Fernández Herrero; Pablo Zúmel Vaquero.

8 **Title of the work:** Dual active bridge with triple phase shift, soft switching and minimum RMS current for the whole operating range
Name of the conference: IECON 2017 - 43rd Annual Conference of the IEEE Industrial Electronics Society
Corresponding author: No
City of event: Beijing, China
Date of event: 2017
Carlos Calderon Benavente; Andrés Barrado Bautista; Alba Rodríguez Lorente; Antonio Lázaro Blanco; Marina Sanz; Emilio Olías.

9 **Title of the work:** Convertidor Bidireccional Dual Active Bridge No Aislado
Name of the conference: Seminario Anual de Automática, Electrónica Industrial e Instrumentación
Corresponding author: Yes
City of event: Barcelona, Spain
End date: 2018
Organising entity: Universitat Politècnica de Catanlunya
Alba Rodríguez Lorente; Andrés Barrado Bautista; Carlos Calderon Benavente; Pablo Zúmel Vaquero; Antonio Lázaro Blanco; Cristina Fernández Herrero.

10 **Title of the work:** Diseño paso a paso de un componente magnético integrado con Núcleo E y triple entrehierro
Name of the conference: Seminario Anual de Automática, Electrónica Industrial e Instrumentación
Corresponding author: Yes
City of event: Córdoba, Spain
End date: 04/07/2019
Organising entity: Universidad de Córdoba
Alba Rodríguez Lorente; Andrés Barrado Bautista; Antonio Lázaro Blanco; Cristina Fernández Herrero; Marina Sanz.

11 **Title of the work:** Energy Management System Optimization for a Fuel Cell Hybrid Vehicle based on Power Losses Minimization
Name of the conference: 2020 IEEE 14th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG)
Corresponding author: No
City of event: Setúbal, Portugal
End date: 08/07/2020

Cristina Fernández Herrero; Alberto Martín Lozano; Andrés Barrado Bautista; Alba Rodríguez Lorente; Antonio Lázaro Blanco.

12 **Title of the work:** Estudio comparativo del convertidor Reductor- Elevador de Cuatro Interruptores (FSBB) y el convertidor Reductor-Elevador Bidireccional con Acoplamiento Magnético (MCB3)
Name of the conference: Seminario Anual de Automática, Electrónica Industrial e Instrumentación
Corresponding author: Yes
City of event: Córdoba, Spain
End date: 2019
Organising entity: Universidad de Córdoba **Type of entity:** University
Alba Rodríguez Lorente; Andrés Barrado Bautista; Carlos Calderon Benavente; Antonio Lázaro Blanco; Pablo Zúmel Vaquero.

13 **Title of the work:** Modelado de un componente magnético integrado con estructura tipo EE y tres entrehierros (E3E)
Name of the conference: Seminario Anual de Automática, Electrónica Industrial e Instrumentación
Corresponding author: Yes
City of event: Ciudad Real, Spain
End date: 03/09/2020
Organising entity: Universidad de Castilla-La Mancha
Alba Rodríguez Lorente; Andrés Barrado Bautista; Giorgio Spiazzi; Paolo Mattavelli; Jaime López López.

14 **Title of the work:** Non-Inverting Magnetically Coupled Buck-Boost Bidirectional DC-DC Converter
Name of the conference: 2020 IEEE 14th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG)
Corresponding author: Yes
City of event: Setúbal, Portugal
End date: 08/10/2020
Organising entity: Setúbal School of Technology & NOVA School of Science and Technology
Rodríguez Lorente Alba; Andrés Barrado Bautista; Antonio Lázaro Blanco; Pablo Zúmel Vaquero; Marina Sanz.

Other achievements

Stays in public or private R&D centres

Entity: Università degli studi di Padova
City of entity: Padova, Italy
Start-End date: 03/09/2018 - 18/12/2018 **Duration:** 3 months
Goals of the stay: Doctorate