Executive Summary

Education and Profile. PhD in Electrical Engineering from the Universitat Politècnica de Catalunya (2025), awarded Cum Laude. His expertise is aligned with the strategic areas of the DEE-UPC, including electrical engineering fundamentals, electrical machines, distribution network planning and operation, renewable energy integration, and electric mobility. His technical approach combines mathematical optimization, power system modeling, and machine learning. He previously obtained a Master of Science in Electrical Engineering from the University of Guadalajara, where he initiated his research career through peer-reviewed international conference contributions and scientific publications, providing a solid foundation for doctoral research.

Research and Knowledge Transfer. He has a well-established research profile for his career stage, with 10 publications in indexed journals, including Electric Power Systems Research and Sustainable Energy Technologies and Assessments (Q1–Q2 JCR/SJR), over 130 citations, and an h-index of 5. He has participated in competitive European and national projects (H2020, Horizon Europe, Next Generation EU), holding technical and work-package coordination responsibilities. He has also contributed to knowledge transfer through university–industry chairs (ENDESA, Estabanell) and the development of technical tools and deliverables for public administrations and the European Commission.

Teaching Experience. He has over 540 hours of teaching experience in undergraduate and master's programs in electrical, industrial, and energy engineering, both internationally and at the UPC. His teaching includes courses and laboratory sessions in electrical engineering, electrical machines, power systems, and artificial intelligence applications in energy. He has supervised bachelor's and master's theses and served on examination committees, demonstrating the ability to adapt to different academic levels and engineering teaching methodologies.

Content

1. Personal Information

Surnames and first name	DNI
Antonio Emmanuel Saldaña González	60185279Y

Nationality	Sex
Spain	Male

Address

Carrer de Valencia 33, CP: 08015, Barcelona

2. Present professional situation

Institution/organization/company	Centre
Universitat Politècnica de Catalunya	Centre d'Innovació Tecnològica en Convertidors Estàtics i Accionaments (CITCEA-UPC)

Department, section, unit	Address
Electrical Engineering Department (DEE)	Av. Diagonal 647 Edifici H, Pavelló G - Despatx 23.27

Postal code	City	Province
08028	Barcelona	Barcelona

Post held	Start date
R&D Senior Project Manager	01/02/2024

Administrative situation

☐ Government employee ☒ Contracted ☐ Supply professor ☐ Scholarship holder ☐ Other situations (please specify):

Commitment	Specialization (UNESCO codes)
☒ Full-time Part-time	330609 Electrical power systems; 120304 Artificial intelligence;120326 Modelling and simulation; 330603 Power transmission and distribution lines

Institution/organisation/comp	Centre
Universitat Politècnica de Catalunya	Escola Tècnica Superior d'Enginyeria Industrial de Barcelona (ETSEIB)

Department, section, unit department	Address
Electrical Engineering Department (DEE)	Av. Diagonal 647 Edifici H, Pavallón G - Despatx 23.27

Postal code	City	Province
08028	Barcelona	Barcelona

Post held	Start date
Substitute teacher	01/09/2025

Administrative situation

☐ Government employee ☐ Contracted ☒ Supply professor ☐ Scholarship holder ☐ Other situations (please specify):

Commitment	Specialization (UNESCO codes)
☐ Full-time Part-time	330602 Electrical Machinery; 330606 Electrical engineering

3. Scientific identification

☒ ORCID ID: 0000-0002-5708-2049   ☒ Scopus ID: 57218924927   ☐ Researcher ID:

4. Education

Bachelor's Degrees *(a_titulo_grado.pdf)*

Degree program	Grade	University and City	Graduation date
Degree in Electrical and Mechanical Engineering	Notable	Universidad Autónoma de Guadalajara (UAG). Guadalajara, México	January 2015

Masters *(a_titulo_master.pdf)*

Master in Science in Electrical Engineering	Sobresaliente	Universidad de Guadalajara (UdG). Guadalajara, México	January 2018

PhD *(a_titulo_doctor_resguardo.pdf)*

PhD in Electrical Engineering	Cum Laude (10)	Universitat Politècnica de Catalunya (UPC). Barcelona, Spain	June 2025

5. Scientific or professional activities before the actual situation

Position held (ref: d_vida_laboral.pdf)	Institution	Period
Senior R&D Project Engineer Coordinator and Postdoctoral researcher	CITCEA-UPC	02/2024-now
Scientific member Chair of Estabanell	CITCEA-UPC	09/2025-now
Scientific member Chair of ENDESA	CITCEA-UPC	01/2020-now
Substitute Professor (3h) Eng. "Circuit analysis Lab & Electrical Machines Lab"	UPC	09/2025-09/2026
Substitute Professor (2h) MSc SENSE – "AI in Energy Systems"	UPC	09/2024-12/2024
Junior Project Engineer	CITCEA-UPC	09/2022-02/2024
AGAUR Predoctoral Scholarship for PhD Studies	AGAUR	10/2020 - 01/2024
PhD student in Electrical Engineering	CITCEA-UPC	10/2019 - 06/2025
Full Time Engineering Professor - courses: "Electric Circuits I & II, Power plants"	UAN - México	08/2018 - 12/2019
CONACYT research scholarship for Master in Science in Elect. Engineering	UdG - México	11/2015 - 06/2017

6. Language abilities

(A= BASIC USER, B= INDEPENDENT USER, C= PROFICIENT USER)

Language	Spoken	Read	Written
Spanish (mother language)	C2	C2	C2
English	C1	C1	C1
French	A2	A2	A2
Catalan	A2	B1	A2

7. Doctoral Thesis

Title: Supervised Learning for Optimal Investment Planning in Active Distribution Networks

Director and Co-director: Andreas Sumper and Mònica Aragüés Peñalba

University: Universitat Politècnica de Catalunya

Department: Electrical Engineering

Qualification: Excellent with Cum laude   **European Doctorate: No** ☒   **Yes** ☐

Year of thesis defense: 2025   **Year of title expedition:** 2025

DOI: 10.5821/dissertation-2117-433360   **URI:** https://hdl.handle.net/2117/433360

A. EU and National Research Projects

i.   Management and participation in research projects

(Referencia de sección: a_Certificados_Proyectos_CITCEA-UPC)

1	**Project title:** Flexible management of the distribution network for maximum decarbonization using artificial intelligence (MERIDIAN)	
	Funding body: Ministry of Science and Innovation, Funded by the European Union-Next Generation EU, Recovery, Transformation and Resilience Plan, State Research Agency.	**Call for participation reference:** TED2021-131753B-I00
	Period from: 2022 **to:** 2024	**Project manager:** Andreas Sumper, Mònica Aragüés Peñalba
2	**Project title:** Analytical tools for electrical systems. Digitization through new data analysis methods and toolboxes for secure, renewable and flexible networks. (ATLAS)	
	Funding body: Ministry of Science, Innovation and Universities, Co-financed by the European Union, State Research Agency.	**Call for participation reference:** PID2021-128101OB- I00
	Period from: 2022 **to:** 2025	**Project manager:** Mònica Aragüés Peñalba, Andreas Stumper
3	**Project title:** Online platform that integrates energy data and AI services for distribution networks (PLATON)	
	Funding body: Government of Spain, Ministry of Economic Affairs and Digital Transformation, Recovery, Transformation and Resilience Plan, UNICO, Funded by the European Union-Next Generation EU.	**Call for participation reference:** TSI-063100-2022-010
	Period from: 2023 **to:** 2025	**Project manager:** Mònica Aragüés Peñalba
		WP Coordinator: Antonio E Saldaña González
4	**Project title:** Orchestrating an interoperable sovereign federated Multi-vector Energy data space built on open standards and ready for GAia-X (OMEGA-X)	
	Funding body: Commission of European Communities	**Call for participation reference:** HORIZON-101069287-OMEGA-X
	Period from: 2022 **to:** 2025	**Project manager:** Mònica Aragüés Peñalba

5	Project title: Big Data for OPen Innovation Energy Marketplace (BD4OPEM)	
	Funding body: Commission of European Communities	**Call for participation reference:** H2020-872525-BD4OPEM
	Period from: 2020 **to:** 2024	**Project manager:** Mònica Aragüés Peñalba

6	Project title: Quantum and hybrid quantum-classical algorithms for power system applications in BSC	
	Funding body: Red Española de Supercomputación	**Call for participation reference:** IM-2025-3-0029
	Period from: 07/2025 **to:** 12/2025	**Researchers:** Mònica Aragüés Peñalba, Sara Barja Martinez, Antonio E Saldaña González, Sergio Martínez, Marc Carrillo Muñoz.

7	Project title: Operation and Planning tools for Enabling Renewable distribution systems Acceleration based on emerging technologies for sustainable computing (OPERA)	
	Funding body: Ministerio de Ciencia, Innovación y Universidades from Spain.	**Call for participation reference:** PID2024-160822OB-I00
	Period from: 09/2025 **to:** 08/2028	**Coordinator scientific:** Mònica Aragüés Peñalba

8	Project title: Advanced Data and AI for Energy to accelerate the Green Deal (AI4GreenDeal)	
	Funding body: EIT Innoenergy	**Call for participation reference:** 101226189
	Period from: 03/2025 **to:** 04/2029	**Coordinator scientific:** Mònica Aragüés Peñalba

ii. Participation in research and technology transfer contracts with companies and/or administration of special importance

(Referencia de sección: a_Certificados_Proyectos_CITCEA-UPC)

Contract title: Cientific Coordinator of Estabanell-UPC Chair	
Funding/administration: Estabanell y Pahisa SA	**Country:** Spain
Period from: 09-2025 **to:** Now	
Main researcher: Mònica Aragüés Peñalba, Sara Barja Martínez, Antonio E. Saldaña G. and Oscar Cabrera R.	

Contract title: Member Chair of ENDESA-UPC	
Funding /administration: ENDESA DISTRIBUCIÓN ELÉCTRICA, S.L.	**Country:** Spain
Period from: 01-2020 **to:** Now	
Main researcher: Andreas Sumper, Eduard Bullich M. and Antonio E. Saldaña G.	
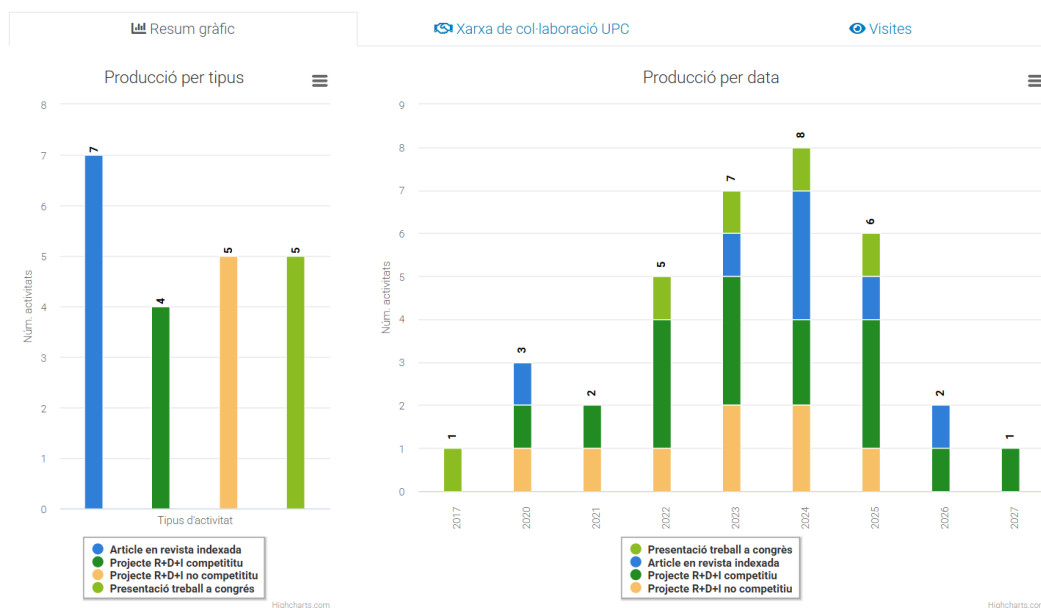
Figure 1 Summary of the candidate's articles, competitive projects, and non-competitive projects

a. Publications

i. Published articles in indexed journals

1 **Title:** A machine learning approach for EVCS integration in distribution network based on optimal investment actions

Authors (by order of signature): Antonio E. Saldaña-González, Andreas Sumper, Verónica Anadón-Martínez, Mònica Aragüés-Peñalba

Journal (title, volume, first-last page): Elsevier Electric Power System Research

Year: January 2026	**Code (A: article, R: review):** A
Indexed in WoS Core Collection: Yes	**Indexed in Scopus:** Yes
Quartile SJR SCIE/SSCI: Q2 (**Rank:** 108/366)	**Quartile and area SJR:** Q1
Impact factor (SCI/SSCI): 4.2	**Index SJR:** 1.137
Number of citations WoS: -	**Number of citations:** 2
ISSN: 0378-7796	**DOI**: 10.1016/j.epsr.2025.112376

2 **Title:** Planning fast-charging stations along highways using probability distribution functions and traffic data

Authors (by order of signature): Verónica Anadón Martínez, Andreas Sumper, **Antonio E. Saldaña-Gonzalez**, Vinicius Gadelha

Journal (title, volume, first-last page): Sustainable Energy Technologies and Assessments, Vol. 82

Year: 2025	**Code (A: article, R: review):** A
Indexed in WoS Core Collection: Yes	**Indexed in Scopus:** Yes
Quartile SJR SCIE/SSCI: Q1 (**Rank:** 28/119)	**Quartile and area SJR:** Q1
Impact factor (SCI/SSCI): 8.00	**Index SJR:** 1.38
Number of citations WoS: -	**Number of citations:** 2
ISSN: 2213-1388	**DOI**: 10.1016/j.seta.2025.104547

3 **Title:** Distribution network planning method: Integration of recurrent neural network model for the prediction of scenarios

Authors (by order of signature): Antonio E. Saldaña-González, Mònica Aragüés-Peñalba, Andreas Sumper

Journal (title, volume, first-last page): Electric Power System Research, Vol. 229, 110125

Year: April 2024	**Code (A: article, R: review):** A
Indexed in WoS Core Collection: Yes	**Indexed in Scopus:** Yes
Quartile SJR SCIE/SSCI: Q2 (Rank: 108/366)	**Quartile and area SJR:** Q1
Impact factor (SCI/SSCI): 4.2	**Index SJR:** 1.137
Number of citations WoS: 7	**Number of citations:** 22
ISSN: 0378-7796	**DOI:** 10.1016/j.epsr.2024.110125

4 **Title:** Analysis of aggregated load consumption forecasting in short, medium and long term horizons using Dynamic Mode Decomposition

Authors (by order of signature): Marc Carrillo Muñoz, Mónica Aragüés Peñalba, **Antonio E. Saldaña González**

Journal (title, volume, first-last page): Energy reports, Volume 12, Pages 1000-1013

Year: December 2024	**Code (A: article, R: review):** A
Indexed in WoS Core Collection: Yes	**Indexed in Scopus:**
Quartile SJR SCIE/SSCI: (Rank:)	**Quartile and area SJR:**
Impact factor (SCI/SSCI): 5.1	**Index SJR:**
Number of citations WoS:	**Number of citations:** 13
ISSN: 2352-4847 (online)	**DOI:** 10.1016/j.egyr.2024.06.040

5 **Title:** Advanced distribution measurement technologies and data applications for smart grids: A review

Authors (by order of signature): Antonio E Saldaña-González, Andreas Sumper, Mònica Aragüés-Peñalba, Miha Smolnikar

Journal (title, volume, first-last page): Energies, 13, 3730

Year: July 2020	**Code (A: article, R: review):** R
Indexed in WoS Core Collection: Yes	**Indexed in Scopus:** Yes
Quartile SJR SCIE/SSCI: Q 2	**Quartile and area SJR:** Q2
Impact factor (SCI/SSCI): 3.004	**Index SJR:** 0.598
Number of citations WoS: 54	**Number of citations:** 54
ISSN: 1996-1073	**DOI:** 10.3390/en13143730

6 **Title:** Review of Active Distribution Network Planning: Elements in Optimization Models and Generative AI Applications

Authors (by order of signature): Antonio E Saldaña-González, Mònica Aragüés-Peñalba, Vinicius Gadelha, Andreas Sumper

Journal (title, volume, first-last page): Energies, Vol.19, pg. 116

Year: December, 2025	**Code (A: article, R: review):** R
Indexed in WoS Core Collection: Yes	**Indexed in Scopus:** Yes
Quartile SJR SCIE/SSCI: Q2	**Quartile and area SJR:** Q2
Impact factor (SCI/SSCI): 3.004	**Index SJR:** 0.598
Number of citations WoS: -	**Number of citations:** -
ISSN: 1996-1073	**DOI:** 10.3390/en19010116

7 **Title:** Evaluation of XGBoost and ANN as surrogates for power flow predictions with dynamic energy storage scenarios

Authors (by order of signature): Perez Yeptho, **Antonio E Saldaña-González**, Mònica Aragüés-Peñalba, Sara Barja-Martínez

Journal (title, volume, first-last page): Energies, Vol. 18, Pag. 4416

Year: August, 2025	**Code (A: article, R: review):** A

8 **Title:** Enhancing distribution grid efficiency and congestion management through optimal battery storage and power flow modeling

Authors (by order of signature): Víctor Taltavull-Villalonga, Eduard Bullich-Massagué, **Antonio E Saldaña-González**, Andreas Sumper

9 **Title:** Review on power routing techniques and converter losses model for VSC-based power router

Authors (by order of signature): Vinicius Gadelha, João Soares-Vila-Luz, **Antonio E. Saldaña-González**, Andreas Sumper

10 **Title:** Spectral Analysis Techniques in Electric Power Systems

Authors (by order of signature): **Antonio E. Saldaña-González**, Diego Aguilar V., Marcial Arroyo Avena, Juan Luis Hernández Méndez

ii.   Submitted articles in indexed journals currently under review

1	**Title:** A Novel Approach for Disaggregating Photovoltaic Generation in Distribution Networks
	Authors (by order of signature): Víctor Taltavull-Villalonga; Andreas Sumper; **Antonio Saldaña-Gonzalez**; Alex Sala-Reig; Alfons Mulero-Jurado
	Journal: Electric Power System Research (**ELSEVIER**)
	Current status: Review
	Date of submission: 20 January 2026 **Code (A: article, R: review):** A

iii.   Summary article publications

B3.1 Number of publications classified per journal:

Journal	Number of Published articles	Number of articles under review
Electric Power System Research	2	1
Sustainable Energy Technologies and Assessments	1	-
Energy Reports	1	-
Energies under "*Special Issues*"	3	-
Electricity	2	-
MICA Journal	1	-
Total	11	

B3.2 Analysis of publications impact based on indicators extracted from Web of Science, Scopus and Google Scholar:

Journal	Web of Science	Scopus	Google Scholar
Citations	59	61	133
h index	4	3	5

B3.3 Analysis of the number of citations and their time evolution according to Google Scholar
Candidate's metrics on her [Google Scholar profile](#).

	Total	Desde 2021
Citas	133	115
Índice h	5	5
Índice i10	4	4
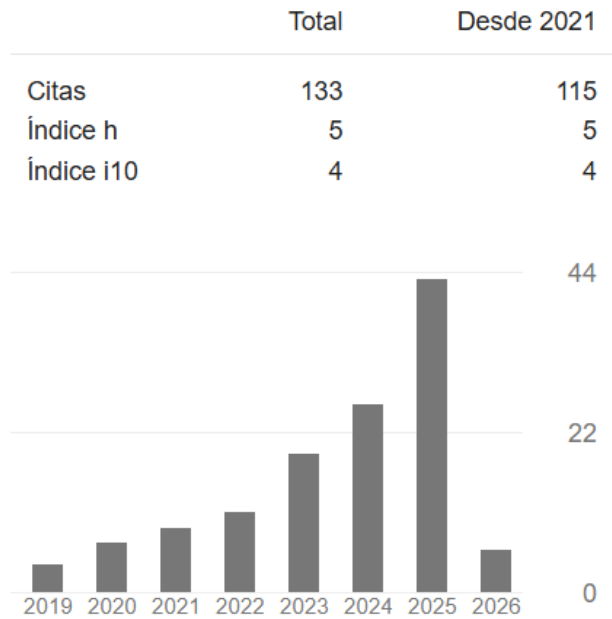
iv.   Other publications

(Articles in journals not subject to external evaluation, technical reports, reports, case studies, translations, etc.) **(Referencia de sección:** a_Certificados_Proyectos_CITCEA-UPC)

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1   **Title:** Deliverable 4.7 "Previous test/validation to pilot deployment: Laboratory tests in CITCEA-UPC smart grid report"

Tasks involved: co-author of this deliverable.   **Year:** 2022

Type: Technical report. Confidential

Pages (first-last): 1-35

Ordering Institution: European Commission

Publisher: BD4OPEM H2020 Project.

Link: https://bd4opem.eu/deliverables/

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2   **Title:** Deliverable 7.6 "*Pilots validation*"

Tasks involved: co-author of this deliverable   **Year**: 2022

Pages (first-last): 1-35

Ordering Institution: European Commission

Publisher: BD4OPEM H2020 Project.

Link: https://bd4opem.eu/deliverables/

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3   **Title:** Deliverable 4.6 "Asset and Investment Planning"

Tasks involved: co-author of this deliverable.   **Year:** 2022

Type: Technical report. Confidential

Pages (first-last): 1-78

Ordering Institution: European Commission

Publisher: BD4OPEM H2020 Project.

4	**Title:** Deliverable 3 "Algoritmos de operación basados en la IA para las redes de distribución"	
	Tasks involved: Main Responsible and Editor of Deliverable	**Year:** 2025
	Type: Technical report. Confidential	
	Pages (first-last): 1-52	
	Ordering Institution: Ministerio de ciencia e innovación & Agencia estatal de investigación.	
	Publisher: PLATON (National Project).	

5	**Title:** Deliverable 4 "Algoritmos de planificación basados en IA para las redes de distribución"	
	Tasks involved: co-author of this deliverable.	**Year:** 2025
	Type: Technical report. Confidential	
	Pages (first-last): 1-41	
	Ordering Institution: Ministerio de ciencia e innovación & Agencia estatal de investigación.	
	Publisher: PLATON (National Project).	

6	**Title:** Deliverable 5 "Reporte de integración de servicios en la plataforma"	
	Tasks involved: co-author of this deliverable.	**Year:** 2025
	Type: Technical report. Confidential	
	Pages (first-last): 1-41	
	Ordering Institution: Ministerio de ciencia e innovación & Agencia estatal de investigación.	
	Publisher: PLATON (National Project).	

v. Publications with external evaluation from conferences

1	**Title:** Recurrent neural networks in distribution network planning: enhanced decision-making under uncertainty	
	Authors (ordered by signature): Antonio E. Saldaña-Gonzalez, Mònica Aragüés-Peñalba, Marc Carrillo-Muñoz, and Andreas Sumper	
	Journal (title, volume, first-last page): IET Conference Proceedings, Volume 2024, Issue 5	
	Year: 2024 **ISSN**: 2732-4494 **DOI**: 10.1049/icp.2024.1925	**Code (A: article, R: review):** A

2	**Title:** Distribution planning tool using flexible strategies: case study in Spanish pilot	
	Authors (ordered by signature): Antonio E. Saldaña-Gonzalez, M. Aragüés-Peñalba, A. Sumper, R. Gallart-Fernández, L. Cànaves-Navarro	
	Journal (title, volume, first-last page): IET Conference Proceedings, Vol. 2023, Issue 6	
	Year: 2023 **ISBN/ISSN:** 9781839538551/ 27324494 **DOI:** 10.1049/icp.2023.1065	**Code (A: article, R: review):** A

3 **Title:** Operation and planning scheme for active distribution networks a BD4OPEM project use case: Spanish pilot

Authors (ordered by signature): A. Hernandez-Matheus, **Antonio E. Saldaña-Gonzalez**; R. Ribeiro; M. Aragüés-Peñalba; E. Bullich-Masagué

Journal (title, volume, first-last page): 27th International Conference on Electricity Distribution (CIRED 2023)

Year: June 2023   **Code (A: article, R: review):** A

ISBN: 978-1-83953-855-1
DOI: 10.1049/icp.2023.1091

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4 **Title:** Distribution network planning considering EV integration: case study in the northwest of Turkey

Authors (ordered by signature): Antonio E. Saldaña-Gonzalez, M. Aragüés-Peñalba, A. Sumper, I. Can-Taştan, and I. Gazioğlu

Journal (title, volume, first-last page): IET Conference Proceedings, Volume 2022, Issue 3

Year: 2022   **Code (A: article, R: review:** A
ISSN: 2732-4494

DOI: 10.1049/icp.2022.0853

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5 **Title:** Monitoring harmonic distortion in microgrids using dynamic mode decomposition

Authors (ordered by signature): Antonio E. Saldaña-Gonzalez; E. Barocio; A. R. Messina; J. J. Ramos; R Juan Segundo; G. A. Tinajero

Journal (title, volume, first-last page): IEEE Power & Energy Society General Meeting

Year: 2017   **Code (A: article, R: review):** A
ISSN: 1944-9933
DOI: 10.1109/PESGM.2017.8274696

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6 **Title:** Quantum optimization approach based on Qibo framework for DC-OPF (Ref: j_Colaboration_QC)

Authors (ordered by signature): Marc Carrillo-Muñoz; Sergio Martinez-Hermida; Sara Barja-Martinez; **Antonio E. Saldaña-González**; Mónica Aragüés Peñalba

Journal (title, volume, first-last page): IEEE PES Innovative Smart Grid Technologies Conference Europe (ISGT Europe)

Year: 2025

ISBN: 979-8-3315-2503-3
DOI: 10.1109/ISGTEurope64741.2025.11305603

b. Congress participations

1 **Title:** Recurrent neural networks in distribution network planning: enhanced decision-making under uncertainty
(ref: n_Certificate of attendance vienna.pdf)

Authors (ordered by signature): Antonio E. Saldaña-Gonzalez, Mònica Aragüés-Peñalba, Marc Carrillo-Muñoz, and Andreas Sumper

Congress: CIRED 2024, Vienna Workshop

Year: 2024   **Code (A: article, R: review):** A

ISSN: 2732-4494

DOI: 10.1049/icp.2024.1925

2 **Title:** Distribution planning tool using flexible strategies: case study in Spanish pilot
(Ref: k_Certificate of attendance rome.pdf)

Authors (ordered by signature): Antonio E. Saldaña-Gonzalez, M. Aragüés-Peñalba, A. Sumper, R. Gallart-Fernández, L. Cànaves-Navarro

Congress: 27th International Conference on Electricity Distribution (CIRED)

Year: 2023   **Code (A: article, R: review):** A

ISBN/ISSN: 9781839538551/ 27324494

DOI: 10.1049/icp.2023.1065

3 **Title:** Operation and planning scheme for active distribution networks a BD4OPEM project use case: Spanish pilot

Authors (ordered by signature): A. Hernandez-Matheus, **Antonio E. Saldaña-Gonzalez**; R. Ribeiro; M. Aragüés-Peñalba; E. Bullich-Masagué

Congress: 27th International Conference on Electricity Distribution (CIRED 2023)

Year: June 2023   **Code (A: article, R: review):** A

ISBN: 978-1-83953-855-1

DOI: 10.1049/icp.2023.1091

4 **Title:** Distribution network planning considering EV integration: case study in the northwest of Turkey

Authors (ordered by signature): Antonio E. Saldaña-Gonzalez, M. Aragüés-Peñalba, A. Sumper, I. Can-Taştan, and I. Gazioğlu

Congress: CIRED Porto Workshop 2022: E-mobility and power distribution systems

Year: 2022   **Code (A: article, R: review:** A

ISSN: 2732-4494

DOI: 10.1049/icp.2022.0853

5 **Title:** Monitoring harmonic distortion in microgrids using dynamic mode decomposition

Authors (ordered by signature): Antonio E. Saldaña-Gonzalez; E. Barocio; A. R. Messina; J. J. Ramos; R Juan Segundo; G. A. Tinajero

Congress: IEEE PES General Meeting in Chicago **(ref: h_Certificate of attendance Chicago.pdf)**

Year: 2017   **Code (A: article, R: review):** A

ISSN: 1944-9933

DOI: 10.1109/PESGM.2017.8274696

c. International University Exchange Program

Centre: Engineering Faculty in Windsor University, Canada **(Ref: i_International_stay_Canada.pdf)**	

City: Windsor (Ontario)	**Country:** Canada	
Year: 2014	**Period (months):** 4	**Key:** Exchange Program of Electrical Engineering

Courses: During the 4 months exchange period, the following Winter courses were taken:

      i) Power System Analysis II

      ii) Signal and Systems

      iii) Digital Logic Design I

      iv) Physical Electronics

d. Research or development activities management

i. Direction/co-direction of Final Master Thesis
(ref: b_Certificado_Docencia_Direcciones_Tribunales_UPC, c_Certificado_UPC_school)

1	**Activity:** Master thesis. Màster Universitari en Enginyeria Industrial (MUEI)
	Dissertation title: Hybrid classical quantum approach for solving ac optimal power flows
	Name of student: Carrillo Muñoz, Marc
	Academic year: 2025
	Institution: Universitat Politècnica de Catalunya, ETSEIB
	URI: https://hdl.handle.net/2117/445749

2	**Activity:** Master thesis. Màster universitari en Enginyeria de l'Energia
	Dissertation title: Impact of EV Integration on a Distribution Grid Using Monte Carlo Method
	Name of student: Chiang, Yu Ching
	Academic year: 2022
	Institution: Universitat Politècnica de Catalunya, ETSEIB
	URI: https://hdl.handle.net/2117/376710

3	**Activity:** Master thesis. Màster universitari en Enginyeria de l'Energia
	Dissertation title: Artificial Intelligence Applied to Demand Forecasting
	Name of student: Cabrera Redondo, Óscar
	Academic year: 2022
	Institution: Universitat Politècnica de Catalunya, ETSEIB
	URI: https://hdl.handle.net/2117/371643

4	**Activity:** Master thesis. Màster Universitari en Enginyeria Industrial
	Dissertation title: Artificial intelligence applied to demand forecasting
	Name of student: Vilanova Rubau, Xavier
	Academic year: 2021
	Institution: Universitat Politècnica de Catalunya, ETSEIB
	URI: https://hdl.handle.net/2117/350951

5	**Activity**: Master thesis. Master in technologies applied to mechatronics 4.0
	Dissertation title: Ajust automàtic de pressió i velocitat d'eixos aplicadors en procés de nano-metal·lització
	Name of student: Marc Andreu Ferrer
	Academic year: 2023
	Institution: Fundació Politècnica de Catalunya

ii. Direction/co-direction of Final Bachelor Thesis

(ref: b_Certificado_Docencia_Direcciones_Tribunales_UPC, c_Certificado_UPC_school)

1	**Activity:** Bachelor thesis. Industrial Technologies and Economic Analysis
	Dissertation title: Power systems restoration after blackouts: a sequential optimization approach
	Name of student: Pau Dalmau Ortiz
	Academic year: 2025
	Institution: Universitat Politècnica de Catalunya, ETSEIB
	URI: https://hdl.handle.net/2117/445081
2	**Activity:** Bachelor thesis. Industrial Technologies Engineering
	Dissertation title: Medium-term photovoltaic generation forecasting for distribution grids
	Name of student: Carrillo Muñoz Marc
	Academic year: 2023
	Institution: Universitat Politècnica de Catalunya, ETSEIB
	URI: https://hdl.handle.net/2117/390619

iii. Direction/co-direction of research stays at CITCEA-UPC

(ref: b_Certificado_Docencia_Direcciones_Tribunales_UPC, c_Certificado_UPC_school)

1	**Activity:** Research stay in CITCEA-UPC
	Dissertation title: Optimization of battery sizing and location in electrical distribution networks with photovoltaic generation
	Name of student: Martínez Vega Roberto Emmanuel
	Academic year: 7/2022 - 9/2022
	Institution (From): Universidad Nacional Autónoma de México, Facultad de Ingeniería en energías Renovables
2	**Activity:** Research stay in CITCEA-UPC
	Dissertation title: Evaluation of XGBoost and ANN as Surrogates for Power Flow Predictions with Dynamic Energy Storage Scenarios
	Name of student: Perez Yeptho
	Academic year: 10/2023 - 07/2024
	Institution: Master's in Energy Engineering student at UPC
3	**Activity:** Research stay in CITCEA-UPC
	Dissertation title: LLMs based models for PV generation forecasts in active distribution networks
	Name of student: Yi-Tsen Kao
	Academic year: 10/2025 - 01/2026
	Institution: EIT InnoEnergy, Smart Electrical Networks and Systems (SENSE) student

iv.   Membership of assessment panels

1	**Type of contribution:** Vocal

Work type: Final Thesis of Master in Smart energy

Title: Implementación de un modelo de Red Neuronal Recurrente para la Clasificación de Fallas en Sistemas de Alta Tensión
Authors: Alarcón, Adrian
Date of oral defense: 27/06/2024
Institution: Fundació Politècnica de Catalunya

2	**Type of contribution:** President

Work type: Final Thesis of Master in Smart energy
Title: Sistema de Gestión Energética para el Hogar
Authors: Gala Lima, Raul
Date of oral defense: 29/04/2025
Institution: Fundació Politècnica de Catalunya

3	**Type of contribution:** President

Work type: Final Thesis of Master in Smart energy
Title: Auditoría energética al edificio L de la ETSEIB
Authors: Cárdenas Téllez, Kevin
Date of oral defense: 25/03/2025
Institution: Fundació Politècnica de Catalunya

4	**Type of contribution:** Vocal

Work type: Final Thesis of Master in Smart energy
Title: Quantum computing for peer-to-peer trading optimization
Authors: Martinez, Sergio
Date of oral defense: 8/11/2024
Institution: Fundació Politècnica de Catalunya

5	**Type of contribution:** President

Work type: Final Thesis of Master in Smart energy
Title: Desarrollo de herramientas de cálculo de mínimo deslastre de carga mediante optimal power flow
Authors: Pascual Echarri, Martin
Date of oral defense:12/06/2024
Institution: Fundació Politècnica de Catalunya

6	**Type of contribution:** President

Work type: Final Thesis of Master in Smart energy
Title: Modelo en Machine Learning para la clasificación de faltas eléctricas
Authors: Max Missene Montecinos
Date of oral defense: 05/07/2023
Institution: Fundació Politècnica de Catalunya

7	**Type of contribution:** Vocal

Work type: Final Thesis of Master in Smart energy
Title: Análisis y predicción de la demanda eléctrica en España mediante técnicas de inteligencia artificial
Authors: Lazo Espinoza, Juan José
Date of oral defense: 10/07/2023
Institution: Fundació Politècnica de Catalunya

e. Scholarship and grants

1	**Aim:** Predoctoral Scholarship- FI SDUR
	Funding body: Agència de Gestió d'Ajuts Universitaris de Recerca
	Period covered: 2020-2023 (4 years)
	Institution: CITCEA-UPC. Universitat Politècnica de Catalunya
2	**Aim:** Master Scholarship - CONACYT
	Funding body: Consejo Nacional de Ciencia y Tecnología (CONACYT), Gobierno de México
	Period covered: 2015-2017 (2 years) **(ref: f_Reconocimiento CONACYT.pdf)**
	Institution: Universidad de Guadalajara, México

f. Teaching experience

i. Teaching

First Semester at the University of Nayarit, Mexico (Academic year August – September 2018)
(Ref: e_Certificado_docencia_UAN_Mexico.pdf)

Program	Cycle	Course	Course credits	Hours of teaching	Theory (T) / Practical lessons (P)
Engineering Faculty	Mechanical Engineering	Electric Circuits	7	70 hours	T & P
Engineering Faculty	Mechanical Engineering	Electricity and Magnetism	6	65 hours	T

Second Semester at the University of Nayarit, Mexico (Academic year January – June 2019)
(Ref: e_Certificado_docencia_UAN_Mexico.pdf)

Program	Cycle	Course	Course credits	Hours of teaching	Theory (T) / Practical lessons (P)
Engineering Faculty	Mechanical Engineering	Electric Circuits	7	70 hours	T & P
Engineering Faculty	Mechanical Engineering	HVAC (Heating, Ventilation, and Air Conditioning)	7	70 hours	T

Third Semester at the University of Nayarit, Mexico (Academic year August – September 2019)
(Ref: e_Certificado_docencia_UAN_Mexico.pdf)

Program	Cycle	Course	Course credits	Hours of teaching	Theory (T) / Practical (P)
Engineering Faculty	Mechanical Engineering	Energy Efficiency	7	70 hours	T

Program	Cycle	Course	Course credits	Hours of teaching	Theory (T) / Practical lessons (P)
Engineering Faculty	Mechanical Engineering	Power Plants	7	70 hours	T

Third Year as Phd Student (Academic year 2022-23, Institution: UPC i Fundació Politècnica de Catalunya) (Ref: c_certificado_UPC_school.pdf)

Program	Cycle	Course	Course credits	Hours of teaching	Theory (T) / Practical lessons (P)
Master's Degree in Applied Technologies for Mechatronics 4.0	Postgraduate Program in Industry Digitalization Techniques	Introduction to Big Data and Machine Learning		10.5 hours	T & P

Fifth Year as a PhD Student (Academic year 2024-25, Institution: UPC i Fundació Politècnica de Catalunya)

(Ref: c_certificado_UPC_school.pdf)

Program	Cycle	Course	Course credits	Hours of teaching	Theory (T) / Practical lessons (P)
Master's Degree in Applied Technologies for Mechatronics 4.0	Postgraduate degree in Digital Energy	Big Data and Machine Learning		7 hours	T & P

Fifth Year as a PhD Student with substitute professor contract (Academic year 2024, Institution: UPC, ETSEIB)
(Ref: b_Certificado_Docencia_Direcciones_Tribunales_UPC.pdf)

Program	Cycle	Course	Course credits	Hours of teaching	Theory (T) / Practical lessons (P)
Master's Degree in Energy Engineering	Postgraduate degree in Industrial Engineering	Artificial Intelligence in Energy Systems	5 credits	45 hours	T & P

First Year as Postdoc with substitute professor contract (Academic year 2025, Institution: UPC, ETSEIB)

(Ref: b_Certificado_Docencia_Direcciones_Tribunales_UPC.pdf)

Program	Cycle	Course	Course credits	Hours of teaching	Theory (T) / Practical lessons (P)
Bachelor's Degree in Industrial Technologies Engineering	Fall Semester	Lab of Electrotécnia		27 hours	P
Bachelor's Degree in Industrial Technologies Engineering	Fall Semester	Lab of Electric Machines		9 hours	P

First Year as Postdoc with substitute professor contract (Academic year 2026, Institution: UPC, ETSEIB)
(Ref: b_Certificado_Docencia_Direcciones_Tribunales_UPC.pdf)

Program	Cycle	Course	Course credits	Hours of teaching	Theory (T) / Practical lessons (P)

Bachelor's Degree in Industrial Technologies Engineering	Spring Semester	Lab of Electric Machines	9 hours	P
Bachelor's Degree in Industrial Technologies Engineering	Spring Semester	Lab of Transport and Distribution Power Systems	9 hours	P

ii. Teaching metrics

Cumulative number of hours of teaching activities:

	Cumulative hours
Total number of hours of teaching in UPC Bachelor courses	54 h
Total number of hours of teaching in UPC Master courses	62.5 h
Total number of hours of teaching in UAN (Mexico) Bachelor courses	415 h

g. Teaching training

Describe stays in centres, participation in courses, postgraduate programs and programs in your particular disciplinary field as well as those specific of university teaching training

i. Participation in courses

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1 Training course: Leading High-Performing Research Teams *(ref: u_Diploma Leading High 2025_signed.pdf)*

About: This course equips PhD students with essential leadership and team management skills for academic and professional research environments, combining theory with practical exercises to foster effective communication, collaboration, motivation, and inclusive team dynamics.
Hours: 15 h
Date: from 01/2025 to 02/2025
Location: Barcelona, Spain
Institution: UPC Doctoral School

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2 Training course: Harmonics in Distribution Networks with Integration of Renewable Energy and Modern Electronic Equipment *(ref: p_Certificado_Curso_armónicos.pdf)*

About: Technical workshop focused on harmonics in electrical distribution networks, addressing the impact of renewable energy integration and modern power electronic equipment, with emphasis on analysis and mitigation in power systems.
Hours: 4 h
Date: 2016
Location: Morelia, Mexico
Institution: IEEE Power & Energy Society (IEEE-PES)

3	**Training course:** Distribution Systems Planning *(ref: q_Certificado_Planificación_de_sistemas_de_distribución.pdf)*

About: This course provides a comprehensive introduction to power system planning, with a focus on distribution networks. During 30 hours, the training course covered the fundamentals of planning principles, demand forecasting, and expansion planning, including optimization-based calculations and staged expansion strategies. The course also addresses reliability assessment in distribution systems and operational planning, equipping participants with a solid understanding of how to design, expand, and operate electrical networks efficiently and reliably.

Hours: 30 h

Date: from10/8/2021 to 26/08/2021

Location: Lima, Perú
Institution: INEL Engineering Education

4	**Training course: "**All Electric Society International Summit on Electric Mobility through Smart Cities" (ref: s_certificado_formación_electromovilidad_gijon.pdf)

About: International summit on electric mobility and smart cities, focused on electromobility, power grids, energy transition, and digital transformation. Key advantages include exposure to European project results, updated insights on smart grid technologies, and networking with experts from academia and industry.
Hours: 13 hours
Date: 19/09/2024 & 20/09/2024
Location: Gijon, Spain
Institution: Universidad de Oviedo

ii. Specific University teaching training

6	**Training course:** Scientific publishing *(ref: x_Certificado Cientific Writting.pdf)*

About: Workshop on scientific publishing for PhD students, covering publishing strategies, open access, journal impact metrics, and the structure and peer-review process of scientific articles.
Hours: 2 h
Date: 31/03/2022
Location: Barcelona, Spain
Institution: l'Institut de Ciències de l'Educació, UPC

7	**Training course:** How to complete your doctoral thesis: submission and defense (ref: v_Certificado de como finalizer tesis doctoral.pdf)

About: The main objective of this training activity is to understand the process for completing and submitting a doctoral thesis within the framework of the academic regulations of doctoral studies at UPC.
Hours: 3 h
Date: 30/04/2021
Location: Barcelona, Spain
Institution: l'Institut de
Ciències de l'Educació,
UPC

5	**ENDESA Chair with CITCEA-UPC** *(ref: w_Certificado Electrificacion de Catalunya.pdf)*

Title: The electrification of Catalonia, past and future
About: Conference organized by the ENDESA Chair of the Escola Tècnica Superior d'Enginyeria Industrial de Barcelona of the Universitat Politècnica de Catalunya.
Date: 14/12/2021
Location: Barcelona, Spain.

h. Teaching publications and material

Key: H: handbooks, PB: practice books, G: guides, OLM: on-line material, or others (please specify)

Authors (ordered by signature): Marc Jené, **Antonio E Saldaña Gonzalez** and Vinicius Gadelha

Title: Introduction to Big Data and Machine Learning

Published in: Virtual Campus Atenea

Year: 2022 and 2024

Authors (ordered by signature): Oscar Larraburre, Oscar Cabrera R., and **Antonio E Saldaña Gonzalez**

Title: Theoretical and practical exercises on artificial intelligence applied to the Artificial Intelligence in Energy Systems Master course.
Published in: Internal repository of UPC

Year: 2024

i. Participation on teaching and institutional tasks

Work: Presentation of EU and National Project Results in the International Summit of "All Electric Society International Summit on Electrical Mobility through Smart Cities"
(ref: r_certificado_ponente_gijon_proyectoss_saldana_2024.pdf)

Task: Presentation of EU and National projects results at CITCEA - UPC in a conference entitled "Results of

European Projects related to Smart grids and eMobility"
Date of oral presentation: 19/09/2024 and 20/09/2024
Entity: Universidad de Oviedo

j. Participation in activities on teaching quality promotion, evaluation, and diffusion of research

(Courses and seminars on teaching improvement, participation in quality assessment committees of the degrees, etc.).

1. **Research project diffusion:** OMEGA-X Project General Assembly
(ref: o_certificado_asamblea_omega_x_12_2024.pdf)

About: General Assembly of the EU OMEGA-X project, where consortium partners presented work package updates, discussed technical progress, and reviewed key results, milestones, and next steps for the project's development and coordination.

Hours: 16 hours

Date: 30/01/2024 and 31/01/2024

Location: Genova, Italy
Institution: Project member hosting (RINA Consulting)

2. **Research project diffusion:** OMEGA-X Project General Assembly
(ref: m_certificado_asamblea_omega_x_06_2024.pdf)

About: General Assembly of the EU OMEGA-X project, where consortium partners presented work package updates, discussed technical progress, and reviewed key results, milestones, and next steps for the project's development and coordination.

Hours: 16 hours

Date: 5/06/2024 and 6/06/2024

Location: Maia, Portugal
Institution: Project member hosting (EDP and Municipality of Maia)

3. **Research project diffusion:** OMEGA-X Project General Assembly
(ref: l_certificado_asamblea_omega_x_01_2024.pdf)

About: General Assembly of the EU OMEGA-X project, where consortium partners presented work package updates, discussed technical progress, and reviewed key results, milestones, and next steps for the project's development and coordination.

Hours: 16 hours

Date: 11/12/2024 and 12/12/2024

Location: Granollers, Spain
Hosting Company: Estabanell Energia

k. Activities of professional nature (ref: d_vida_laboral)

Company: CITCEA-UPC	
Charge: Senior R&D project Engineer Coordinator and Postdoctoral researcher	**Dedication:** Full time
Period: 02/2024- nowadays	
Company: CITCEA-UPC	
Charge: Scientific coordinator of Estabanell-UPC Chair	**Dedication:** Part time
Period: 09/2025- nowadays	
Company: CITCEA-UPC	
Charge: Scientific member of ENDESA-UPC Chair	**Dedication:** Part time
Period: 01/2020 - nowadays	
Company: ETSEIB - UPC	
Charge: Substitute teacher	**Dedication:** Part time
Period: 09/2025- 09/2026	
Company: ETSEIB - UPC	
Charge: Substitute teacher	**Dedication:** Part time
Period: 09/2024- 12/2024	
Company: CITCEA-UPC	
Charge: Junior Project engineer	**Dedication:** Full time
Period: 09/2022-02/2024	
Finantial Entity: Agencia de Gestión de Ayudas Universitarias y de Investigación	
Charge: AGAUR Predoctoral Scholarship at UPC	**Dedication:** Full time
Period: 10/2020- 01/2024	
Company: CITCEA-UPC	
Charge: PhD Student of electrical Eng. at UPC	**Dedication:** Full time
Period: 10/2019- 06/2025	
Company: Universidad Autónoma de Nayarit, México	
Charge: Full time Engineering Professor	**Dedication:** Full time
Period: 08/2018-12/2019	
Finantial Entity: Consejo Nacional de Ciencia y Tecnología (México) (**ref: f_Reconocimiento CONACYT.pdf**)	
Charge: CONACYT scholarship for MSc. Electrical Engineering at University of Guadalajara	**Dedication:** Full time
Period: 11/2015 - 06/2017	

I. Further details or recognitions of scientific nature

(Awards, recognitions, posts, etc. Use only the blank space of a sheet of paper)

i.   Awards

Selected as the **Top Best Conference Papers** in the 2017 edition of IEEE Power and Energy Society General Meeting in Chicago, USA. Paper entitled: "Monitoring harmonic distortion in microgrids using dynamic mode decomposition"

About: Selected as one of the top papers submitted to the 2017 IEEE Power & Energy Society General Meeting. Recognized specifically in the "Best Conference Papers Session on Power System Modeling and Analysis." The selection involved delivering an exclusive 8-minute oral presentation followed by a technical defense at the general poster session.

Authors: Antonio E. Saldaña Gonzalez, E. Barocio, A. R. Messina, J. J. Ramos, R Juan Segundo, G. A. Tinajero

Year of Edition: 2017

Organizer: IEEE Power and Energy Society 2017

ii.   Academic Recognitions

Cum Laude, PhD in Electrical Engineering *(ref: y_titulo_doctor.pdf)*

Title: Supervised learning for optimal investment planning in active distribution networks
Director: Andreas Sumper
Codirector: Mónica Aragüés Peñalba
Defense date: 16/06/2025
Degree: Doctoral Thesis
University: Universitat Politècnica de Catalunya
URI: https://hdl.handle.net/2117/433360
DOI: 10.5821/dissertation-2117-433360

iii. Scientific and innovation recognitions

Recognition for Participation in the International Innovation Forum (ref: g_Recognition International Forum 2016.pdf)

About: Recognition for contributing to an academic event that connected Mexican and international researchers with the academic and business communities, promoting research collaboration in strategic areas for national development.

Team involved: Antonio E. Saldaña Gonzalez

Place: Guadalajara, Mexico

Year: 2016

Recognition of Reviewer in the International Journal of Electrical Power & Energy Systems (ref: t_Certificate_JEPE_Recognised.pdf)

About: Reviewer for the International Journal of Electrical Power & Energy Systems (Elsevier), a prestigious Q1 journal in electrical power and energy research, ranked among the top publications in its field.

Reviewer: Antonio E. Saldaña G.

Year: 2024

iv. Membership in a scientific society

1	IEEE Student Membership

About: A discounted membership for students that provides access to technical resources, journals, conferences, career tools, and a global professional network while studying engineering or related fields.
Member number: 94041434
Institution: Institute of Electrical and Electronics Engineers
Year: 2017 - 2022

2	IEEE Power and Energy Society Membership

About: A specialized membership focused on power systems and energy, offering technical publications, conferences, standards development, and networking with professionals in the energy sector.
Institution: Institute of Electrical and Electronics Engineers
Year: 2017 - 2022

3	IEEE Young Professionals Membership

About: A community for recent graduates and early-career professionals that supports career development through networking events, mentoring, leadership opportunities, and professional growth activities.
Institution: Institute of Electrical and Electronics Engineers

Year: 2017 - 2020