MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

CURRICULUM VITAE (CVA)

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

CV date	21/2/2024

Part A. PERSONAL INFORMATION

First name	RAMON		
Family name	COSTA CASTELLÓ		
Gender (*)	MALE	Birth date (dd/mm/yyyy)	08/06/1970
Social Security, Passport, ID number	43701845M		
e-mail	ramon.costa@upc.edu	URL Web	https://ramon-costa.staff.upc.edu/
Open Researcher and Contributor ID (ORCID)(*)		0000-0003-2553-5901	

(*) Mandatory

A.1. Current position

Position	Full Professor (Catedrático de Universitat)		
Initial date	18/9/2023		
Institution	Institut de Robòtica i Informàtica Industrial (IRI)		
Department/Center	Enginyeria de Sistemes, Automàtica i Informàtica Industrial (ESAII) Escola Tècnica Superior d'Enginyeria Industrial de Barcelona (ETSEIB)		
Country	Spain	Teleph. number	+34-934017290
Key words	Automatic Control, Energy Management, Hydrogen, Redox flow batteries, Control Education		

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

Period	Position/Institution/Country/Interruption cause
24/9/2008-18/9/2023	Titular de Universidad (UPC)
01/09/2005-23/9/2008	Profesor contratado doctor (Lector) at UPC
01/01/2001-31/08/2005	Profesor asociado tipo III at UPC

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licenciado en Informática	Universitat Politècnica de Catalunya (UPC)	1993
Doctor en Informática	Universitat Politècnica de Catalunya (UPC)	2001

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

I was born in Lleida, in 1970, I obtained a degree in computer science in 1993 at the Facultat d'Informàtica de Barcelona (FIB) from UPC, in 2001 I got the doctorate in the Advanced Automation and Robotics (AAR) program at Institut de Cibernètica of the UPC.

Since 2023 I am a Full Professor at the ESAII department from UPC, I also belong to the IRI institute (Institut de Robòtica I Informàtica Industrial) from CSIC-UPC (which has given the Maria de Maezu Excellence seal in the period 01/07/2017- 31/12/2021).

My teaching activity is linked to ETSEIB and currently to the degree in industrial technology engineering (GETI), the master's degree in industrial engineering (MUEI) and the master's degree in Automation and Robotics (MUAR). I am currently the academic coordinator of the compulsory subjects 240EI011-Process Control and 240AR021 - Nonlinear Control Systems. It should be noted that 240EI011 is a multigroup subject with 8 groups (5 in the fall and 3 in the spring) and 240AR021 is a subject taught entirely in English.
Since 2016, I'm the academic coordinator of the master's degree in Automatic Control and Robotics taught at ETSEIB. This is an official master taught completely in English.
During these years I have supervised many final degree projects, PFC (pre-Bologna), (36), final degree projects (37) and final master's theses (26) and 10 doctoral theses (one of them an extraordinary doctoral award). I am currently supervising 3 doctoral theses.
In the different subjects I have developed different teaching material, highlighting the publication of two books.
I have also participated in numerous teaching innovation projects aimed at developing virtual/remote labs and introducing interactivity as a teaching tool. I would like to highlight the participation in the Automatl @ bs project.
My teaching duties have been positively evaluated in 5 five-year periods (quinquenios) (1998-2003,2003-2008,2008-2011,2011-2016,2016-2021).
My research focuses on the development of control techniques and their application to different systems of interest in the field of engineering. This research is currently being carried out within the framework of the Advanced Control Systems group (SAC, 2017 SGR 482) and the IRI fuel cell group.
In recent years my research has focused on the development of digital control techniques for monitoring/rejecting periodic signals (repetitive control and resonant control), the development of techniques for state and parameter estimation, and its application to energy management systems. Recently focused on the modeling and control of electrochemical energy storage systems (hydrogen, redox flux batteries). As a result of this research, I have participated in a good number of regional, national and European projects.
The results of my research have been published in 100 JCR journal publications (Q1:46, Q2: 26, Q3:19, Q4: 9). H-index (Scholar Google: 33, ResearchGate: 27, Scopus: 25, WOS: 23).
The webpage:

https://ramon-costa.staff.upc.edu

contains detailed information on these publications.
My research has been positively evaluated in 3 six-year periods (sexenios) (2000-2005,2006-2011,2012-2017). I also have a six-year period for technology transfer (2003-2018).

I regularly collaborate with different scientific organizations: I am a Senior Member of the IEEE.
Since 1998 I have been an active member of the Spanish Automation Committee (CEA), and its thematic groups in Control Engineering and Automatic Education. Since 09/2016 I am the secretary of the association and a member of the Board of Directors of CEA.
Additionally, I am an IFAC (International Federation of Automatic Control) affiliate member, especially active in 2 technical committees of the (TC 7.1 on "Automotive Control" and TC 9.4 on "Control Education").
I am a regular reviewer of various prestigious international journals and conferences, and I work as a reviewer with the AEI.

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

C.1. Publications *(10 recent ones)*

1. Offline and online parameter estimation of nonlinear systems: Application to a solid oxide fuel cell system. Yashan Xing, Lucile Bernadet, Marc Torrell, Albert Tarancón, Ramon Costa-Castelló, Jing Na. ISA Transactions, 2022. DOI: 10.1016/j.isatra.2022.07.025
2. *Fuel cell module control based on Switched/Time-Based Adaptive Super-Twisting Algorithm: design and experimental validation.* Anderson J.L., Moré J.J., Puleston P.F. and Costa-Castelló R. IEEE Transactions on Control Systems Technology. 2022. DOI: 10.1109/TCST.2022.3169441.
3. *Addressing the relative degree restriction in nonlinear adaptive observers: A high-gain observer approach.* Andreu Cecilia, Ramon Costa-Castelló. Journal of the Franklin Institute 2022. DOI: 10.1016/j.jfranklin.2022.03.020.

4. *Adaptive Nonlinear Parameter Estimation for a Proton Exchange Membrane Fuel Cell.* Yashan Xing, Jing Na, Mingrui Chen, Ramon Costa-Castelló and Vicente Roda. IEEE Transactions on Power Electronics 2022. DOI: 10.1109/tpel.2022.3155573.
5. *On Addressing the Security and Stability Issues Due to False Data Injection Attacks in DC Microgrids – An Adaptive Observer Approach.* Andreu Cecilia, Subham Sahoo, Tomislav Dragicevic, Ramon Costa-Castelló and Frede Blaabjerg. IEEE Transactions on Power Electronics 2022. DOI: 10.1109/TPEL.2021.3114990.
6. Detection and Mitigation of False Data in Cooperative DC Microgrids with Unknown Constant Power Loads. Andreu Cecilia, Subham Sahoo, Tomislav Dragicevic, Ramon Costa-Castelló, Frede Blaabjerg. IEEE Transactions on Power Electronics 2021. DOI: 10.1109/TPEL.2021.3053845.
7. Nonlinear Adaptive Observation of the Liquid Water Saturation in Polymer Electrolyte Membrane Fuel Cells. A. Cecilia, M. Serra, R. Costa-Castelló. Journal of Power Sources. DOI: 10.1016/j.jpowsour.2021.229641.
8. Grid congestion mitigation and battery degradation minimisation using model predictive control in PV-based microgrid U. R. Nair, M. Sandelic, A. Sangwongwanich, T. Dragicevic, R. Costa-Castelló, and F. Blaabjerg, IEEE Transactions on Energy Conversion, 2021. DOI: 10.1109/TEC.2020.3032534.
9. Adaptive estimation of time-varying parameters with application to roto-magnet plant. J. Na, Y. Xing, and R. Costa-Castelló. IEEE Transactions on Systems, Man, and Cybernetics: Systems, vol. 51, no. 2, pp. 731-741, Feb. 2021. DOI: 10.1109/TSMC.2018.2882844
10. Energy management strategy for fuel cell-supercapacitor hybrid vehicles based on prediction of energy demand. Mauro G. Carignano; R. Costa-Castelló; V. Roda; N.M. Nigro; S. Junco; D. Feroldi. Journal of Power Sources. ISSN: 0378-7753. Volume 360, 31 August 2017, Pages 419–433. DOI 10.1016/j.jpowsour.2017.06.016.

C.2. Congress (10 recent ones)

1. On State-Estimation in Weakly-Observable Scenarios and Implicitly Regularized Observers. Andreu Cecilia, Ramon Costa-Castelló (December 2021). 60th IEEE Conference on Decision and Control (CDC). Oral presentation.
2. Library-based adaptive observation through a sparsity-promoting adaptive observer. A. Cecilia and R. Costa-Castelló. European Control Conference 2021. June 29-July 2, 2021. Oral presentation.
3. SOC and diffusion rate estimation in redox flow batteries: An I&I-based high-gain observer approach. A. Clemente, A. Cecilia and R. Costa-Castelló. European Control Conference 2021. June 29-July 2, 2021. Oral presentation.
4. Adaptive Parameter Estimation-based Observer Design for Nonlinear Systems. Yashan Xing, Jing Na, Ramon Costa-Castelló and Guanbin Gao. 59th Conference on Decision and Control. Jeju Island. December 8th-11th 2020 . Oral presentation.
5. Adaptive Online Parameter Estimation Algorithm of PEM Fuel Cells. Yashan Xing, Jing Na, Ramon Costa-Castello. European Control Conference (ECC'19), June 25-28, 2019. Naples (Italy). Oral presentation.
6. Configurations of model predictive control to exploit energy flexibility in building thermal loads. Thibault Péan, Jaume Salom, Ramon Costa-Castelló. IEEE Conference on Decision and Control (CDC). 2018. Miami Beach, FL, USA. Dec. 17-19. Oral presentation.
7. Chattering Free High Order Sliding Mode Observer for Estimation of Liquid Water Fraction in a Proton Exchange Membrane Fuel Cell. Julio Luna, Ramon Costa-Castelló. European Control Conference (ECC '2018). Limassol, Cyprus, June 12-15, 2018. Oral presentation.
8. Temperature Control of Open-Cathode PEM Fuel Cells. Stephan Strahl, Ramon Costa-Castelló. 20th IFAC World Congress. Toulouse. 9-14 July 2017. Oral presentation.
9. Different Architectures to Develop Repetitive Controllers. Víctor Sanz i López, Ramon Costa-Castelló, German Andres Ramos. 20th IFAC World Congress. Toulouse. 9-14 July 2017. Oral presentation.

10. A Novel Energy Management Strategy for Fuel-Cell/Supercapacitor Hybrid Vehicles. Mauro Guido Carignano, Ramon Costa-Castelló, Norberto Marcelo Nigro, Sergio Junco. 20th IFAC World Congress. Toulouse. 9-14 July 2017. Oral presentation.

C.3. Research projects (last 10 years)

- SINGLE: Electrified Single Stage Ammonia Cracking to Compressed Hydrogen. HORIZON-101112144-SINGLE. PI: Maria Serra Prat. 196,250 € [01/05/2023-05-30/04/2026]
- MASHED: Efficient Management of Energy Systems including Hybrid Electrochemical Energy Storage using Digitalisation Technologies. TED2021-129927B-I00. PI: Ramon Costa Castelló and Vicenç Puig. 247,480 € [01/12/2022-30/11/2024]
- PTI+ TRANS-ENER: Fabricación del módulo BFR 50W. CSIC Project TRE2103000. PI Ramon Costa [15/04/2021-31/12/2022]
- MAFALDA: Manufacture, automation and integration of vanadium redox flow batteries in renewable energy systems. PID2021-126001OB-C31. 150,887 €. PI: Ramon Costa and Maria Serra. [01/01/2022-31/12/2024]
- PTI+ TRANS-ENER - Renewable 60 kg/day hydrogen station. CSIC (TRE2103000). PI: Maria Serra. 86.000,00 €. [1/1/2021-31/12/2022]
- AFC4Hydro: Active flow control system for improving hydraulic turbine performances at off-design operation. PI: Xavier Escaler. Commission of European Communities H2020-814958-AFC4Hydro. 1.084.861,25 € [01/06/2019-31/05/2023]
- Study and development of high eficient Hydrogen storage System Based on solid oxide Cells and reNewable energy sources (Hy-BCN). Barcelona Council (19S01452-006). PI: Maria Serra. 30.900,00 €. [27/12/2019- 26/06/2021]
- Control and energy management in hybrid electric vehicles with fuel cells (DOVELAR). MINECO (RTI2018-096001-B-C32). PI: Ramon Costa and Maria Serra. 139.750,00 €. [1/1/2019-31/12/2021]
- INN-BALANCE: Innovative cost improvements for balance of plant components of automotive PEMFC systems. Commission of European Communities. H2020-735969-INN-BALANCE. PI: Maria Serra Prat. 240.125,00 €. [01/01/2017-31/12/2019]
- MICAPEM: Parameter estimation, diagnosis and control for the improvement of efficiency and durability of PEM fuel cells. MIN DE ECONOMIA Y COMPETITIVIDAD. DPI2015-69286-C3-2-R. PI : Maria Serra Prat and Ramon Costa Castelló. 171.820,00 € [01/01/2016-31/12/2016].
- INCITE: Innovative controls for renewable sources integration into smart energy systems. Commission of European Communities. H2020-675318-INCITE. PI: Carlos Ocampo-Martinez. 229.337,24 €. [01/12/2015-30/11/2019].
- COSIN: Synthetic fuels. ACC10. RIS3CAT COMRDI15-1-0037-06. PI: Maria Serra Prat. 40.002,99 €. [01/11/2016-31/10/2019].
- REFER: Energy reduction and flexibility in buildings in rehabilitation. ACC10. RIS3CAT COMRDI15-1-0036-11. PI: Maria Serra Prat. 24.998,13 €. [01/06/2016-31/12/2018].
- SAC: Advanced Control Systems. Sistemes Avançats de Control. AGAUR. 2017 SGR 482. PI : Vicenç Puig. 62.280,00 €. .[01/01/2017-31/12/2019].
- ACES : Advanced Control of Energy Systems. AGAUR. 2014 SGR 267. PI : Josep M. Olm. 30.000,00 €. [01/01/2014-30/04/2017].
- MESPEM : Development of control systems for efficiency and durability improvement in PEM fuel cell based systems. Ministerio de Ciencia e Innovación (MICINN). DPI2011-25649. PI: Maria Serra Prat. 130.680,00 €. [01/01/2012-30/06/2015].
- COCORED. Advanced control techniques to improve the operation of VSI converters connected to the grid. Ministerio de Ciencia e Innovación (MICINN). DPI2010-15110. PI: Robert Griñó Cubero. 116.111,98 €. [01/01/2011-31/03/2014].

C.4. Contracts, technological or transfer merits (last 10 years)

- CENIT VERDE (UPC-CTT-C-07936). Lear Corporation-ACES. PI : Domingo Biel Solé. [393.116 €]. (1/09/2009-1/09/2012)