

CURRICULUM VITAE (CVA)

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CV date

2023-06-13

Part A. PERSONAL INFORMATION

First name	Jorge Eugenio		
Family name	Jiménez Hornero		
Gender (*)	Male	Birth date (dd/mm/yyyy)	██████████
Social Security, Passport, ID number	██████████		
e-mail	jjimenez@uco.es	URL Web	
Open Research and Contributor ID (ORCID)(*)		0000-0001-5560-239X	

(*) Mandatory

A.1. Current position

Position	Associate Professor		
Initial date	2010		
Institution	University of Cordoba		
Departament/Center	Dpt. of Electrical Engineering and Automatic Control / School of Engineering Sci.		
Country	Spain	Teleph. number	957 212079
Key words			

A.2. Previous positions (research activity interruptions, art. 45.2.c))

Period	Position/Institution/Country/Interruption cause
2000-2006	Assistant Lecturer / University of Cordoba (Spain)
2006-2009	Tenure / University of Cordoba (Spain)
2009-2010	Lecturer / University of Cordoba (Spain)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD (Automatic Control and Industrial Electronics)	UNED (Spain)	2007
MEng (Automatic Control and Industrial Electronics)	University of Cordoba (Spain)	2000
BEng (Industrial Electronics)	University of Cordoba (Spain)	1997

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

Jorge Jimenez has three six-year research periods evaluated by the Spanish National Agency. According to SCOPUS database, he has 32 published research works, 457 total citations and an h-index equal to 14. His more important contributions are focused on process modelling, optimization and control, in particular fermentative processes, HVAC systems in public transport vehicles and electrical microgrids, as well as on dynamic modelling of pollutants and design of event-based control strategies; such contributions can be considered as relevant because they have been published in JCR-indexed journals, mainly located in Q1 and Q2

quartiles. Furthermore, he has participated in 14 funded research projects (as main researcher in one of them) with notable results published in several journals and with PhD Thesis emerged from them.

As contributions with economic and social impact, he has been responsible of 10 contracts with companies, four of them about research subjects (being the main researcher): optimization of microgrids, development of frequency response models of power transformers to optimize the performance tests (they are being used by ABB company now), provision of professional services and automation of the dissolved gases analysis in power transformers (facility currently in operation); the remaining six were about professional training in industrial automation at public companies. Additionally, he has also participated in 10 contracts with companies about research and provision of professional services on several subjects, as automation of wastewater treatment or composting tunnels plants, mathematical modelling of hydraulic power plants or optimization and control of industrial wine vinegar production (acetic acid fermentation). Regarding to scientific dissemination activities, he has been member of the organizing committee of 2 international conferences focused on fermentative processes.

On the other hand, he has supervised three PhD Thesis, one of the PhD being currently Associate Professor at University of Cordoba and the other two occupying leading roles at private sector companies; furthermore, he is currently co-supervising four PhD Thesis. Regarding to scientific assessment activities, it can be highlighted the following:

- Evaluator of research projects from the National Research Agency of the Ministry of Science, Innovation and Universities since 2021.
- Member of the Reviewer Board of the JCR-indexed journal "Processes" (Q2) since 2020.
- Reviewer of several JCR-indexed journals since 2010.

Part C. RELEVANT MERITS

C.1. Publications

1. Vazquez, F., Garrido, J.; Ruz, M.; Jimenez-Hornero, J.E.; "Stiction compensation for low-cost electric valves" (2023). Control Engineering Practice, 134, 105482-105499.
2. Delgado, M.L., Jimenez-Hornero, J.E.*, Vazquez, F.; "Design, implementation and validation of a Hardware-in-the-Loop test bench for heating systems in conventional coaches" (2023). Applied Sciences, 13, 2212-2234.
3. Jimenez-Hornero, J.E.*, Santos-Dueñas, I.M., Garcia-Garcia, I.; "Modelling of wine vinegar acetification bioreactor: Global sensitivity analysis and simplification of the model" (2022). Journal of Industrial and Engineering Chemistry, 111, 308-323.
4. Alvarez-Caliz, C., Santos-Dueñas, I.M.*, Jimenez-Hornero, J.E., Garcia-Garcia, I.; "Optimization of the acetification stage in the production of wine vinegar by use of two serial bioreactors" (2021). Applied Sciences, 11(3), 1217-1233.
5. Alvarez-Caliz, C., Santos-Dueñas, I.M.*, Jimenez-Hornero, J.E., Garcia-Garcia, I.; "Modelling of the acetification stage in the production of wine vinegar by use of two serial bioreactors" (2020). Applied Sciences, 10(24), 9064-9087.
6. Jimenez-Hornero, J.E.*, Santos-Dueñas, I., Garcia-Garcia, I.; "Modelling Acetification with Artificial Neural Networks and Comparison with Alternative Procedures" (2020). Processes, 8(7), 749-772.
7. Ruz, M.*, Garrido, J., Jimenez-Hornero, J.E., Virrankoski, R., Vazquez, F.; "Simulation tool for the analysis of cooperative localization algorithms for wireless sensor networks" (2019). Sensors, 19(13), 2866-2888.
8. Jimenez-Hornero, J.E.*, Belmonte, A., Garrido, J., Ruz, Mario L., Vazquez, F.; "Software tool for acausal physical modelling and simulation" (2019). Symmetry, 11(10), 1199-1225.

9. Belmonte, A., Garrido, J.*, Jimenez-Hornero, J.E., Vazquez, F.; "Recomputing causality assignments on lumped process models when adding new simplification assumptions" (2018). *Symmetry*, 10(4), 102-124.
10. Ruiz, A.*, Beschi, M., Visioli, A., Dormido, S., Jimenez-Hornero, J.E.; "A unified event-based control approach for FOPTD and IPTD processes based on the filtered Smith predictor" (2017). *Journal of the Franklin Institute*, 354, 1239-1264.

C.2. Congresses

1. Delgado, M.L.; Jimenez-Hornero, J.E.; Vazquez, F.; "Modelo térmico de un sistema de calefacción para vehículos de transporte público" (2022). *XLIII Jornadas de Automática, Logroño (Spain)*, pp. 500-507 (Proceedings). ISBN: 978-84-9749-841-8. Poster.
2. Ruiz, A., Jimenez-Hornero, J.E., Sanchez, J., Dormido, S.; "Characterization and tuning of predictive SSOD-PI controllers" (2015). *23rd Mediterranean Conference on Control & Automation (MED 2015)*, Torremolinos (Spain), pp. 47 (Proceedings). ISBN: 978-1-4799-9935-4. Oral Presentation.
3. Ruiz, A., Jimenez-Hornero, J.E., Sanchez, J., Dormido, S.; "Event-based control for IPTD processes with simple tuning methods" (2015). *23rd Mediterranean Conference on Control & Automation (MED 2015)*, Torremolinos (Spain), pp. 47 (Proceedings), ISBN: 978-1-4799-9935-4. Oral Presentation.
4. Ruiz, A., Jimenez-Hornero, J.E., Ruz, M., Dormido, S., Visioli, A.; "Interactivity-based control education: Some experiences at the University of Cordoba" (2015). *IFAC Workshop on Internet Based Control Education (IBCE 2015)*, Brescia (Italy), pp. 41-42 (Proceedings), ISBN: 978-1-5108-1938-2. Poster.
5. Garcia-Garcia, I., Cañete-Rodríguez, A.M., Santos-Dueñas, I.M., Jimenez-Hornero, J.E.; "Gluconic acid bioproduction by acetic acid bacteria, a difficult equilibrium to reach" (2015). *4th International Conference on Acetic Acid Bacteria: Vinegar and Other Products (AAB 2015)*, Taiyuan (China), *Acetic Acid Bacteria 4(s1)*, 14, ISSN: 2240-2845. Invited lecture.
6. Garcia-Garcia, I., Cañete-Rodríguez, A.M., Santos-Dueñas, I.M., Jimenez-Hornero, J.E., Torija-Martinez, M.J., Mas, A.; "Strawberry purée: selective bio-transformation of its glucose content into gluconic acid: Influence of the initial concentration of substrate on the stability of the product" (2015). *4th International Conference on Acetic Acid Bacteria: Vinegar and Other Products (AAB 2015)*, Taiyuan (China), *Acetic Acid Bacteria 4(s1)*, 21, ISSN: 2240-2845. Poster.
7. Ruiz, A.; Jimenez-Hornero, J.E.; "Control of a PEM fuel cell based on maximum power tracking using radial basis function neural network" (2014). *International Conference on Renewable Energies and Power Quality (ICREPQ 2014)*, Córdoba (Spain), *Renewable Energy and Power Quality Journal* 12, 478-479, ISSN: 2172-038X. Poster.
8. Santos-Dueñas, I.M., Jimenez-Hornero, J.E., Cañete-Rodríguez, A.M., Mauricio, J.C., Garcia-Martinez, T., Baena-Ruano, S., Garcia-Garcia, I.; "Dependence of viable cell concentration on operational variables during an acetification process in a fed-batch pilot fermenter" (2012). *3rd International Conference on Acetic Acid Bacteria: Vinegar and Other Products (AAB 2012)*, Córdoba (Spain), *Acetic Acid Bacteria 1(s1)*, 27, ISSN: 2240-2845. Poster.
9. Santos-Dueñas, I.M., Jimenez-Hornero, J.E., Cañete-Rodríguez, A.M., Baena-Ruano, S., Cantero-Moreno, D., Garcia-Garcia, I.; "Polynomial modelling for the optimization of acetic acid wine fermentation in a fed-batch pilot fermenter" (2012). *3rd International Conference on Acetic Acid Bacteria: Vinegar and Other Products (AAB 2012)*, Cordoba (Spain), *Acetic Acid Bacteria 1(s1)*, 29, ISSN: 2240-2845. Poster.
10. Cañete-Rodríguez, A.M., Santos-Dueñas, I.M., Bonilla-Venceslada, J.L., Jimenez-Hornero, J.E., Garcia-Garcia, I.; "Production of strawberry vinegar as a base product in the development of new healthy beverages" (2012). *3rd International Conference on*

Acetic Acid Bacteria: Vinegar and Other Products (AAB 2012), Cordoba (Spain), Acetic Acid Bacteria 1(s1), 30, ISSN: 2240-2845. Poster

C.3. Research projects

1. "Optimization and control of heating systems in battery electric buses" (TED2021-130373B-I00). Ministerio de Ciencia e Innovación y Unión Europea ("NextGenerationEU"/PRTR). Participants: Universidad de Córdoba. Duration: 2023-2024. Grant: 103,960.00 €. Main researchers: Jorge E. Jimenez Hornero and Francisco Vazquez.
2. "Design of heating control strategies in public transport vehicles" (P18-TP-2040). Consejería de Transformación Económica, Industria, Conocimiento y Universidades (Junta de Andalucía). Participants: Universidad de Córdoba y UNED. Duration: 2020-2022. Grant: 69,708.00 €. Main researcher: Francisco J. Vázquez Serrano
3. "Design of multivariable control systems through decoupling: application to wind turbines" (P10-TEP-6056). Consejería de Economía, Innovación y Ciencia (Junta de Andalucía). Participants: Universidad de Córdoba y UNED. Duration: 2011-2015. Grant: 128,836.76 €. Main researcher: Francisco J. Vázquez Serrano
4. "Fermentation processes for the production of a new beverage from strawberry" (AGL2010-22152-C03-03). Ministerio de Ciencia e Innovación. Participants: Universidad de Córdoba. Duration: 2010-2013. Grant: 96,800.00 €. Main researcher: Isidoro García García
5. "Integration of measures at farming basins with different scales in a water and sediment model" (AGL2009-12936-C03-02). Ministerio de Ciencia e Innovación. Participants: Universidad de Córdoba, Instituto de Agricultura Sostenible (IAS). Duration: 2010-2012. Grant: 84,700.00 €. Main researcher: Francisco J. Jiménez Hornero
6. "Industrial cyanided waste treatment at reactors with bacterial cultures. Optimization and process applications" (PET2008-0048). Ministerio de Ciencia e Innovación. Participants: Universidad de Córdoba. Duration: 2009-2012. Grant: 175,450.00 €. Main researcher: Conrado Moreno Vivian
7. "Multifractal analysis of urban pollution from vehicle traffic" (P08-RNM-03989). Consejería de Innovación, Ciencia y Empresa (Junta de Andalucía). Participants: Universidad de Córdoba. Duration: 2009-2013. Grant: 203,813.00 €. Main researcher: Francisco J. Jiménez Hornero

C.4. Contracts, technological or transfer merits

1. "Advanced technology to increase the flexibility and resilience of electrical distribution networks by AC/DC renewable energy hybrid microgrids, solid oxide electrolysis, fuel cell and recyclable and watertight hydrogen storage". Contract with company: Magtel, S.A. Duration: 01/11/2022-31/10/2025. Main researchers: Félix García Torres and Jorge E. Jiménez Hornero. Grant: 150,000.00 €.
2. "Model characterization of power transformers". Contract with company: Asea Brown Boveri (ABB), S.A. Duration: 01/03/2016-31/05/2016. Main researcher: Jorge E. Jiménez Hornero. Grant: 10,403.14 €
3. "Modelling of power transformers frequency response using rational approximations". Contract with company: Asea Brown Boveri (ABB), S.A. Duration: 01/11/2015-31/01/2016. Main researcher: Jorge E. Jiménez Hornero. Grant: 7,366.77 €
4. "Automation and SCADA for data acquisition from a dissolved gases analysis interface in power transformers". Contract with company: Asea Brown Boveri (ABB), S.A. Duration: 01/07/2015-30/09/2015. Main researcher: Jorge E. Jiménez Hornero. Grant: 3,843.53 €