

Part A. PERSONAL INFORMATION

		Date	19/09/2019
Name and surname	Sebastián Dormido Bencomo		
DNI/NIE/passport	41943320Z	Age	72 years
Identification number of the researcher	Researcher ID	K-6918-2014	
	Orcid Code	0000-0002-2405-8771	

A.1. Current professional status

University	Universidad Nacional de Educación a Distancia (UNED)		
Dpt./School	Informática y Automática, E.T.S. de Ingeniería Informática		
Address	c/ Juan del Rosal 16, 28040 Madrid,		
Phone	913987151	mail	sdormido@dia.uned.es
Professional category	Emeritus Professor	Start date	01/01/1976
UNESCO code	331102, 331101, 120309, 120326		
Keywords	Control Engineering, Automation Technology		

A.2. Academic training (title, institution, date)

Bachelor's degree/ Doctorate	University	Year
Bachelor of Physical Sciences	Complutense University	1968
Doctor of Science	University of the Basque Country	1971

A.3. General indicators of the quality of scientific production

Research six-year terms: 6, the maximum.

Doctoral theses supervised in the last 10 years: 12 thesis

Total citations: 12164 (Google Scholar), 3879 (Scopus), 3513 (Web of Science)

Average number of citations/year in the last 5 years: 1000 (Google Scholar), 200 (Web of Science)

Total publications in the first quartile (Q1) in the last 10 years: 85

Index *h*: 55 (Google Scholar), 32 (Scopus), 30 (Web of Science)

Part B. FREE SUMMARY OF THE CURRICULUM

In 1968 he obtained a degree in Physics from the Complutense University and in 1971 a Doctor of Science degree from the University of the Basque Country. Both degrees with Extraordinary Prize. Since 1975 he has been a university professor first at the Complutense University and since 1982 at the UNED. He has been Vice Chancellor for Research at the UNED (1983-85) and Director of the Department of Computer and Automation for more than 20 years.

The fields where he has focused his work throughout his research career have been the following: Computer process control, model based predictive control, robust control, auto-tuning of PID controllers, modeling and simulation in process control, virtual and remote laboratories for control teaching, application of the information technologies to the distance learning, event based control.

He has published more than 400 research papers in journals and conferences of his specialty.

He has directed more than 40 research projects funded in competitive national and international calls. He has also directed numerous collaborative projects with companies in automation in which he has tried to transfer the technology developed in his research group to the productive and industrial sector. Among others, the following stand out: Repsol YPF, IBM, Indra, Central Nuclear Trillo I, Sociedad General Azucarera de España, Escuela Nacional de la Salud, Investrónica Sistemas, Asociación de la Industria Navarra, Petronor, Labein, Ikerlan, Empresarios Agrupados,

He has supervised 38 Doctoral Theses. 10 of his doctoral students are full professors and 16 associate professors.

He has been a plenary speaker among others at the following international congresses: 15th IFAC World Congress, Barcelona, (2002), 6th IFAC Symposium on Advances in Control Education, Oulu (2003), 2nd IFAC Workshop Internet Based Control Education, Grenoble (2005), GIREP-ICPE-MPTL Conference, Reims (2010), 4th IFAC Workshop on Fractional

Differentiation and Its Applications, Badajoz (2010), European Control Conference, Strasbourg (2014), 4th International Conference on Control, Decision and Information Technologies, Málaga (2017), 3rd International Conference on Event-Based Control, Communication and Signal Processing, Funchal (2017)

Editor and member of the editorial board of several journals in his area of specialization. From 2016 is Editor of the IFAC Journal of Systems and Control

He has co-organized numerous national and international events in his field of specialization. He has six teaching five-year terms and six research six-year terms.

Invited to give lectures in numerous foreign Universities: Oxford, Cambridge, Lund, Bradford, Caltech, Moscú, EPFL Lausanne, ETH Zurich, Bochum, Ghent, Stuttgart, British Columbia, Politécnico de Milán, Roma, Columbia, Oulu, Trondheim, Southern California, Técnica de Budapest, Técnica de Praga, ...

Part C. MOST RELEVANT MERITS

C.1. Publications (in the last 5 years (2018-2013) a selection)

J. Sánchez, M^a. Guinaldo, A. Visioli, S. Dormido. "Enhanced Event-based Identification Procedure for Process Control", *Industrial & Engineering Chemistry Research*, 57, 21, 7218–7231 2018, doi: 10.1021/acs.iecr.7b05239.

E. Aranda, J. Salt, M^a. Guinaldo, J. Chacón, S. Dormido. "Optimal control for aperiodic dual-rate systems with time-varying delays", *Sensors*, 2018, 18, 1491; doi: 10.3390/s18051491

E. Aranda, C. Rodríguez, M^a. Guinaldo, J. L. Guzmán, S. Dormido. "Asynchronous periodic event-triggered control with dynamical controllers", *Journal of the Franklin Institute*, 355, 2018, 3455-3469, doi: 10.1016/j.jfranklin.2018.01.037

G. Farias, E. Fabregas, E. Peralta, H. Vargas, G. Hermosilla, G. Garcia, S. Dormido. "A neural network approach for building an obstacle detection model by fusion of proximity sensor data", *Sensors*, 2018, 18, 683; doi:10.3390/s18030683

J. Sánchez, M^a. Guinaldo, A. Visioli, S. Dormido. "Identification of process transfer function parameters in event-based PI control loops", *ISA Transactions*, 75, 2018, 157-171, doi: 10.1016/j.isatra.2018.01.033

L. Merigo, F. Padula, A. Pawlowski, S. Dormido, J. L. Guzmán, N. Latronico, M. Paltenghi, A. Visioli. "A model-based control scheme for depth of hypnosis in anesthesia", *Biomedical Signal Processing and Control*, 42, 2018, 216–229, doi: 10.1016/j.bspc.2018.01.023

R. Socas, R. Dormido, S. Dormido. "New Control Paradigms for Resources Saving: An Approach for Mobile Robots Navigation", *Sensors*, 2018, 18, 281; doi:10.3390/s18010281

J. M. Díaz, R. Costa, R. Muñoz, S. Dormido. "An Interactive and Comprehensive Software Tool to Promote Active Learning in the Loop Shaping Control System Design" *IEEE Access*, 2017, 10.1109/access.2017.2712520

J. A. González Prieto, A. Barreiro, S. Dormido, A. Baños. "Non-linear adaptive sliding mode control with fast non-overshooting responses and chattering avoidance", *Journal of the Franklin Institute*, 354, 2017, 2788–2815, doi: 10.1016/j.jfranklin.2017.01.025

R. Socas, S. Dormido, R. Dormido. "Optimal Threshold Setting for Event-Based Control Strategies", *IEEE Access*, 5, 2017, 2880-2893, doi: 10.1109/access.2017.2671419,

E. Aranda, M. Guinaldo, A. Cuenca, J. Salt, S. Dormido. "An anytime optimal control strategy for multi-rate systems", *IEEE Access*, 5, 2017, 2790-2797.

A. Pawlowski, J. L. Guzmán, M. Berenguel, J. Normey, S. Dormido. "Event-Based GPC for Multivariable Processes: A Practical Approach with Sensor Deadband", *IEEE Transactions on Control Systems Technology*, 2017, doi: 10.1109/TCST.2016.2620061

R. Heradio, L. de la Torre, D. Galán, F. J. Cabrerizo, E. Herrera-Viedma, S. Dormido. "Virtual and Remote Labs in Education: a Bibliometric Analysis", *Computers & Education*, 98, 2016, 14-38.

L. de la Torre, J. P. Sánchez, S. Dormido. "What Remote Labs can do for you", *Physics Today*, 69, 4, 2016, 48-53.

M. Guinaldo, J. Sanchez, R. Dormido, S. Dormido. "Distributed control for large-scale systems with adaptive event-triggering", *J. of the Franklin Institute*, 353, 3, (2016), 735-756

M. Guinaldo, J. Sanchez, S. Dormido. "Distributed adaptive control of linear multi-agent systems with event-triggered communications", *Applied Mathematics and Computation*, 274, 2016, 195–207.

- J. L. Guzmán, R. Costa, S. Dormido, M. Berenguel. "An interactivity-based methodology as support to control education" *IEEE Control Systems Magazine*, 35, 1, 2016, 11-25.
- R. Socas, S. Dormido, R. Dormido, E. Fabregas. "Event-Based Control Strategy for Mobile Robots in Wireless Environments", *Sensors*, 2015, 30076–30092.
- J. Chacón, H. Vargas, G. Farias, J. Sánchez, S. Dormido. "EJS, JIL Server and LabVIEW: An architecture for rapid development of remote labs", *IEEE Transactions on Learning Technologies*, 8, 4, 2015, 393-401.
- A. Pawlowski, J. L. Mendoza, J. L. Guzmán, M. Berenguel, F. G. Acién, S. Dormido. "Selective pH and dissolved oxygen control strategy for a raceway reactor within an event-based approach" *Control Engineering Practice*, 44, 2015, 209–218.
- M. Beschi, S. Dormido, J. Sánchez, A. Visioli. "A closed-loop automatic tuning technique for an event-based PI controller", *Industrial & Eng. Chemistry Research*, 2015, 54, 6362–6370.
- J. Saenz, J. Chacón, L. de la Torre, A. Visioli, S. Dormido. "Open and Low-Cost Virtual and Remote Labs on Control Engineering", *IEEE Access*, 3, 2015, pp. 805-814.
- L. de la Torre, M^a. Guinaldo, R. Heradio, S. Dormido. "The Ball and Beam System: A Case Study of Virtual and Remote Lab Enhancement with Moodle", *IEEE Transactions on Industrial Informatics*, 11, 4, August 2015, 934-945.
- J. Bonilla, S. Dormido, F. E. Cellier. "Switching Moving Boundary Models for Two-phase Flow Evaporators and Condensers", *Communications in Nonlinear Science and Numerical Simulation*, 20 (2015), 743-768.
- M. Guinaldo, D. Lehmann, J. Sanchez, S. Dormido, K.H. Johansson. "Distributed event-triggered control for non-reliable networks", *Journal of the Franklin Institute*, 351, 2014, pp. 5250-5273
- A. Ruiz, J. Jimenez, J. Sánchez, S. Dormido. "Design of event-based PI-P controllers using interactive tools", *Control Engineering Practice*, 32, 2014, pp. 183-202.
- J. Bonilla, S. Dormido, F. E. Cellier. "Switching Moving Boundary Models for Two-phase Flow Evaporators and Condensers", *Communications in Nonlinear Science and Numerical Simulation*, 20 (2015), 743-768.
- A. Pawlowski, J. L. Mendoza, J. L. Guzmán, M. Berenguel, F. G. Acién, S. Dormido. "Effective utilization of flue gases in raceway reactor with event-based pH control for microalgae culture", *Bioresource Technology*, 170 (2014), 1–9
- M. Beschi, S. Dormido, J. Sánchez, A. Visioli. "A new design for a two degree-of-freedom send-on-delta sampling PI control strategy", *Control Engineering Practice*, 30, 9, 55-66, 2014
- M. Beschi, J. Sánchez, S. Dormido, A. Visioli, L. Yebra. "Event-based PI plus Feedforward Control Strategies for a Distributed Solar Collector Field", *IEEE Transactions on Control Systems Technology*, 22, 4, 2014, 1615-1622.
- M. Beschi, S. Dormido, J. Sánchez, A. Visioli. "Tuning of symmetric send-on-delta PI controllers", *IET Control Theory & Applications*, 8, 4, 248-259, 2014,
- R. Dormido, J. Sánchez, N. Duro, S. Dormido-Canto, M. Guinaldo, S. Dormido. "An Interactive Tool for Outdoor Computer Controlled Cultivation of Microalgae in a Tubular Photobioreactors System", *Sensors*, 14, 4466-4483.
- J. Salt, A. Cuenca, F. Palau, S. Dormido. "A Multirate Control Strategy to the Slow Sensors Problem: An Interactive Simulation Tool for Controller Assisted Design", *Sensors*, 14, 4086-4110, 2014.
- A. Ruiz, J. Jimenez, J. Sánchez, S. Dormido. "A Practical Tuning Methodology for Event-Based PI Control", *Journal of Process Control*, 24, 278– 295, 2014
- A. Barreiros, A. Baños, S. Dormido, J. A. González. "Reset Control Systems with Reset Band: Well-posedness and Limit Cycles Analysis", *Systems Control Letters*, 63, 2014, 1–11
- M. Guinaldo, E. Fabregas, G. Farias, S. Dormido-Canto, D. Chaos, J. Sanchez, S. Dormido. "Mobile robots experimental environment with event-based wireless communications", *Sensors*, 13, 2013
- V. Sanz, A. Urquia, S. Dormido, F. E. Cellier. "Hybrid System Modeling using the SIMANLib and ARENALib Modelica Libraries", *Simulation Modelling Practice Theory*, 37, 2013, 1-17
- M. Guinaldo, D. V. Dimarogonas, K. H. Johansson, J. Sanchez, S. Dormido. "Distributed Event-Based Control for Interconnected Linear Systems", *IET Control Theory & Applications*, 7, 6, 2013, 877-886
- J. A. González Prieto, A. Barreiro, S. Dormido. "Frequency domain properties of reset systems with multiple reset anticipations", *IET Control Theory & App.*, 7, 6, 2013, 796-809

J. Chacón, J. Sánchez, A. Visioli, L Yebra, S. Dormido. "Characterization of limit cycles for self-regulating and integral processes with PI control and send-on-delta sampling", *Journal of Process Control*, 23, 826– 838, 2013.

D. Chaos, J. Chacón 1, J. A. Lopez-Orozco, S. Dormido "Virtual and remote robotic laboratory using EJS and LabVIEW", *Sensors*, 13, 2, 2595-2612

J. D. Álvarez, J. L. Guzmán, D. E. Rivera, M. Berenguel, S. Dormido. "Perspective on control-relevant identification through the use of interactive tools", *Control Engineering Practice*, 21, 2, 171-183, 2013

C.2. Projects (as IP, selection of 6 in the last 10 years)

" Diseño Eficiente y Control Distribuido de Sistemas Ciber-Físicos ", Ministerio de Ciencias, Innovación y Universidades, CICYT, RTI2018-094665-B-I00, 2019-2021.

"Control basado en eventos de sistemas distribuidos y colaborativos", Ministerio de Economía y Competitividad, CICYT DPI2012-31303, 2012-2014.

"Modelado, simulación y control basados en eventos", Ministerio de Educación y Ciencia, CICYT DPI-2007-61068, 2007-2012

"Control de sistemas complejos en la logística y producción de bienes y servicios", Comunidad de Madrid, ref. S-0505/DPI-0391, UNED, UPM, UCM, IAI-CSIC, 2006-2009

"Herramientas interactivas para el modelado, visualización, simulación y control de sistemas dinámicos", Ministerio de Ciencia y Tecnología, CICYT DPI 2004-01804, 2005–2007

"Automation Technicians Vocational Training Repository (AUTOTECH)", Comisión Europea (Leonardo da Vinci project), ref N/04/B/PP 165.011, 2004–2006

C.3. Some contracts (as IP)

"Laboratorio virtual de lavadora industrial en Java-Dymola", Ikerlan, S. Cooperativa, 2006-07, 60.000 euros

"Algoritmos de autoajuste basados en el método del ciclo límite para un regulador de temperatura tipo PID", Labein, 1998-1999, 4 millones de pesetas

"Curso de control de procesos destinado a operadores jefes y operadores de panel", Repsol Petroleo S.A y Petronor, 1997-1999, 6 millones de pesetas

"SINTOLAB: Laboratorio de sintonía de lazos regulatorios", Repsol Petroleo S.A, 1994 - 1995, 5 millones de pesetas

"Realización de un paquete de software multimedia para el desarrollo de un curso de diseño y patronaje industrial", Investrónica Sistemas, 1994-1995, 5 millones de pesetas

"Técnicas avanzadas de control y supervisión de procesos mediante sistema experto", Sociedad General Azucarera de España, 1993-1995, 5 millones de pesetas

"Simulación del circuito de condensado para el análisis frente a perturbaciones en el funcionamiento de la C. N. Trillo I", Central Nuclear Trillo I, 1990-1991, 2 millones de pesetas

"Aspectos algorítmicos del diseño de sistemas inerciales ligados", Ceselsa, 1986-1988, 10 millones de pesetas

C.5. Other merits

1981-84, Secretary of the "Asociación Española de Informática y Automática" (AEIA)

1984-87 President of the "Asociación Española de Informática y Automática" (AEIA)

1994-2000 Member of the Board of Directors of CEA

2002-06 President of the "Comité Español de Automática" (CEA)

2007 Doctor Honoris Causa by the University of Huelva

2008 National Award for Automatic Control. "Comité Español de Automática" (CEA)

2008 Teaching Innovation Research Award from the Social Council of the UNED

2009-2012 Member of the Accreditation Committee of University Professors of ANECA for the Area of Engineering and Architecture

2014 Doctor Honoris Causa by the University of Almería

2014-17 Chair of the "Control Education" Technical Committee of IFAC

2015-16 Chair of the "Control Education" Technical Committee of the IEEE CSS

2016 Prize of the Social Council of the UNED to the "good practices" of the PDI and PAS

2019 IFAC Control Education Life Time Achievement Award