

**Part A. PERSONAL INFORMATION**

CV date 23-02-2022

First and Family name	Teodoro Alamo Cantarero	
Social Security, Passport, ID number	[REDACTED]	Age [REDACTED]
Researcher codes	WoS Researcher ID (*)	[REDACTED]
	SCOPUS Author ID(*)	[REDACTED]
	Open Researcher and Contributor ID (ORCID) **	[REDACTED]

(*) At least one of these is mandatory

(**) Mandatory

A.1. Current position

Name of University/Institution	Universidad de Sevilla	
Department	Systems Engineering and Automation	
Address and Country	Escuela Superior de Ingenieros, Sevilla, Spain	
Phone number	[REDACTED]	E-mail [REDACTED]
Current position	Full Professor	Since: 2010
Key words	Model Predictive Control, Randomized Algorithms, Optimization	

A.2. Education

	University	Year
Phd. in Telecommunications Engineering	University of Seville	1998
Telecommunications Engineering	Polytechnic University of Madrid	1993

A.3. JCR articles, h Index, thesis supervised...

4 periods of six years of research (sexenios de investigación) recognized by the CNEAI, last one in 2019.

235 research works including **73 JCR journal papers**, **43 of them Q1**. More than **150 conference proceedings** and **12 book chapters**. A total of **11 PhD Theses** supervised.

WoS citations: 3843. **WoS h-index: 32**.

As the WoS database coverage is limited, the citation figures and h-index of other databases is included:

Scopus citations: 5179. **Scopus h-index: 37**.

Google Scholar citations: 8269. **Google Scholar h-index: 46**, i10-index: 137 (https://scholar.google.es/citations?hl=es&user=W3ZDTkIAAAJ&view_op=list_works).

Part B. CV SUMMARY (max. 3500 characters, including spaces)

Teodoro Alamo was born in Spain in 1968. He received his M.Eng. degree in Telecommunications Engineering from the Polytechnic University of Madrid (Spain) in 1993 and his Phd. in Telecommunications Engineering from the University of Seville in 1998.

From 1993 to 2000 he was assistant professor of the Department of System Engineering and Automatic Control of the University of Seville. He was associate professor from 2001 to 2010. Since March 2010 he is full professor in the same department.

He was at the Ecole Nationale Supérieure des Télécommunications (Telecom Paris) from September 1991 to May 1993. Part of his Phd was done at RWTH Aachen, Germany, June-September 1995.

His current research interests are in decision making, model predictive control, machine learning, randomized algorithms and optimization strategies.

He has published **73 JCR** journal papers (**Automatica: 17, IEEE Transactions on Automatic Control: 13, Journal of Process Control: 11, Systems & Control Letters: 5, etc.**). More than **150 conference proceedings** and **12 book chapters**. According to the Web of Science (Thomson Reuters), he is among the five spanish researches with largest h-index in the field of Automation and Control Systems (<http://indice-h.webcindario.com>).

He has supervised **11 PhD Theses**. Two of them were distinguished with the extraordinary doctorate award of the University of Seville.

He has co-funded the **spin off companies**: Idener (2010), Optimal Performance (2011), Gnarum (2012) and OptimalDat (2013).

Teodoro Álamo has participated, as a researcher, in **18 projects with public funding**. He has been the **research leader in three** of them. **He has directed 9 transfer projects**, specially in the context of machine learning, and data reconciliation, for different industrial applications (water networks, electricity market, wind and photovoltaic electric production, data-based cancer detection, etc.)

He has done different short stays in Politécnico di Torino (2008, 2018), Laboratoire d'Analyse et d'Architecture des Systèmes, Toulouse (1994, 2012), GIPSA-Lab Grenoble (2012, 2016, 2017), Automatic Control Laboratory at the Ecole Polytechnique Federale de Lausanne (2011), Laboratorio de Simulacao e Controle de Processos, Universidade de Sao Paulo, Brasil (2011).

Part C. RELEVANT MERITS

C.1. Publications (Journals). (Last 3 years: 2022-2021-2020)

1. M Mammarella, V Mirasierra, M Lorenzen, T Alamo, F Dabbene. Chance-constrained sets approximation: A probabilistic scaling approach. *Automatica*.137, 110108, 2022.
2. I Alvarado, P Krupa, D Limon, T Alamo. Tractable robust MPC design based on nominal predictions. *Journal of Process Control*. 111, 75-85, 2022.
3. T. Alamo, P. Krupa and D. Limon. Restart of accelerated first order methods with linear convergence under a quadratic functional growth condition. *IEEE Transactions on Automatic Control*, doi: 10.1109/TAC.2022.3146054, 2022.
4. P. Krupa, D. Limon and T. Alamo. Harmonic Based Model Predictive Control for Set-Point Tracking. *IEEE Transactions on Automatic Control*, 67(1), pp. 48-62, 2022.
5. A. D. Carnerero, D. R. Ramirez and T. Alamo. State-Space Kriging: A Data-Driven Method to Forecast Nonlinear Dynamical Systems. *IEEE Control Systems Letters*. vol. 6, pp. 2258-2263, 2022.
6. T. Alamo, P. Millán, D. G. Reina, V. M. Preciado and G. Giordano. Challenges and Future Directions in Pandemic Control. *IEEE Control Systems Letters*. vol. 6, pp. 722-727, 2022.
7. V. Mirasierra, M. Mammarella, F. Dabbene and T. Alamo. Prediction Error Quantification Through Probabilistic Scaling. *IEEE Control Systems Letters*, vol. 6, pp. 1118-1123, 2022, doi: 10.1109/LCSYS.2021.3087361., 2021.
8. T. Alamo, P. Millán, D. G. Reina, V. M. Preciado and G. Giordano. Data-driven methods for present and future pandemics: Monitoring, modelling and managing. *Annual Reviews in Control*. 52, 448-464, 2021.
9. A. D. Carnerero, D. R. Ramirez and T. Alamo. Probabilistic interval predictor based on dissimilarity functions. *IEEE Transactions on Automatic Control*, doi: 10.1109/TAC.2021.3136137, 2021.
10. P. Krupa, I. Alvarado, D. Limon and T. Alamo. Implementation of Model Predictive Control for Tracking in Embedded Systems Using a Sparse Extended ADMM

Algorithm. *IEEE Transactions on Control Systems Technology*, doi: 10.1109/TCST.2021.3128824, 2021.

11. B. Karg, T. Alamo and S. Lucia. Probabilistic performance validation of deep learning-based robust NMPC controllers. *International Journal of Robust and Nonlinear Control*. 31 (18), 8855-8876, 2021.
12. M. Fiacchini and T. Alamo. Probabilistic reachable and invariant sets for linear systems with correlated disturbance. *Automatica* 132, 109808, 2021.
13. A Venturino, CS Maniu, S Bertrand, T Alamo, EF Camacho. Distributed moving horizon state estimation for sensor networks with low computation capabilities. *System Theory, Control and Computing Journal*. 1 (1), 81-87, 2021.
14. P. Krupa, D. Limon, T. Alamo. Implementation of Model Predictive Control in Programmable Logic Controllers. *IEEE Transactions on Control Systems Technology*. 29(3). 1117-1130, 2021.
15. G. Alfonso, A.D. Carnerero, D.R. Ramírez, T. Alamo., Receding Horizon Optimization of Large Trade Orders. *IEEE Access*. Vol 9, 63865-63875, 2021.
16. G. Alfonso, A.D. Carnerero, D.R. Ramírez, T. Alamo. Stock Forecasting Using Local Data. *IEEE Access*. Vol. 9, 9334-9344, 2021.
17. D. Merhy ,C. Stoica Maniu,T. Alamo, E.F. Camacho,S. Ben Chabane, T.Chevret. Guaranteed set-membership state estimation of an octorotor's position for radar applications.*International Journal of Control*, 93(11), 2760-2770, 2020.
18. J.R. Salvador, D. Muñoz de la Peña, D.R. Ramírez. Predictive control of a water distribution system based on process historian data. *Optimal Control Application Methods*. 41,571–586, 2020.
19. T. Alamo, DG Reina, M. Mammarella, A. Abella. Covid-19: Open-Data Resources for Monitoring, Modeling and Forecasting the Epidemic. *Electronics* 9 (5), 827, 2020.

C.2. Research projects and grants (Last 10 years)

As leader researcher:

- **PID2019-106212RB-C41.** Operación Segura de Infraestructuras Estratégicas Basada en Optimización con Restricciones Probabilísticas y Aprendizaje. Ministerio de Ciencia, Innovación y Universidades 2019. Teodoro Álamo Cantarero, Daniel Rodríguez Ramírez; Universidad de Sevilla; 1/1/2020 - 31/12/2022; 206.305 EUR; Principal researcher; Active.
- **DPI2013-48243-C2-2-R.** Estimación y Optimización Dinámica de la Eficiencia en Infraestructuras Críticas. Ministerio de Economía y Competitividad. Univ. Sevilla. 01/01/2014- 31/12/2016; 79.000€.

As member of the research group:

- DPI2016-76493-C3-1-R. Operación Económica Basada en Datos de Sistemas Cyber-Físicos; Ministerio de Economía y Competitividad; Daniel Limón Marruedo, David Muñoz de la Peña Sequeda. Univ. Seville. 30/12/2016 - 29/12/2019; 169.930 EUR.
- P11-TEP-8129. Gestión Óptima de Edificios de Energía Cero; Consejería de Innovación, Ciencia y Empresa. Junta de Andalucía, 2011. Eduardo Fernández Camacho. Univ. Seville. 26/03/2013 - 25/03/2017; 1.287.602 EUR.
- DPI2010-21589-C05-01. Técnicas de Control Predictivo para la Gestión Eficiente de Micro-Redes de Energías Renovables. Ministerio de ciencia e innovación. Carlos Bordons Alba. Univ. Seville. 01/01/2011 - 31/12/2014; 203.280 EUR.
- FP7-257462. Highly-complex and networked control systems (HYCON2); European Commission VII Framework Programme; Eduardo Fernández Camacho. Univ. Seville. 01/09/2010 - 31/08/2014; 196.696 EUR.

- DPI2008-05818. Control Predictivo en Red. Ministerio de Ciencia y Tecnología. Eduardo Fernández Camacho. Univ. Seville. 01/01/2009- 31/12/2013; 534.699 EUR.
- FP7-223854; Hierarchical and Distributed Model Predictive Control of Large-Scale Systems. European Commission VII Framework Programme; Eduardo Fernández Camacho. Univ. Seville. 01/09/2008 - 31/08/2011; 228.731 EUR.
- P07-TEP-02720; Control y Optimización de Sistemas Híbridos de Energías Renovables; Junta de Andalucía. Eduardo Fernández Camacho. Univ. Seville. 31/01/2008 – 30/01/2012; 375.133 EUR.

C.3. Contracts and transference activities (Last 10 years).

As leader of the research contract:

- Detección Pólipos de Colon (ES-1554/42/2015). Universal Diagnostics, 2015.
- Detección Cáncer de Colon (PI-1394/2015). Universal Diagnostics, 2015.
- Predicción Precios y Coste Desvíos Mercado Eléctrico (PI-1413/2015). Gnarum 2015.
- ECOWAMER. Monitorización de Fugas, Consumos y Fraude en Redes de Abastecimiento de Agua (PI-1463/2015), EMASESA, 2015.
- Plan Óptimo de Muestreo (ES-1150/33/2013). Landys & Gyr, 2013.
- Medida Coherente de Caudal (PI-1071/2013). EMASESA, 2013.

As member of the research group:

- Diseño y desarrollo en un dispositivo SoC (System on Chip) con integración en silicio de tecnología de Campos Magnéticos (PI-1951/42/2019).
- Model-based and Data-driven Predictive Control Algorithms for Tracking (PI-1681/42/2017). MITSUBISHI ELECTRIC B.V. 2017-2019. 25.096. EUR.

Spin-off companies:

Cofounder of:

- OPTIMIZACIÓN PARA LA SOSTENIBILIDAD S.L. (IDENER), 2010.
- OPTIMAL PERFORMANCE S.L., 2011.
- GNARUM S.L., 2012.
- OPTIMALDAT S.L., 2013.

C.5 Supervised thesis (Last 10 years)

- Krupa García, Pablo. Contributions to the implementation of predictive controllers. 2021.
- Merhy, Dory: Zonotopic Set-Membership State Estimation Techniques for Fault Detection and Fault Tolerant Control. 2019.
- Pereira Martin, Mario: Contribution to Economic Control with Changing Criteria. 2016. (**extraordinary doctorate award of the University of Sevilla**).
- Ben Chabane, Sofiane: Fault Detection Techniques based on Set-Membership State Estimation for Uncertain Systems. 2015.
- Luque Sendra, Amalia: On Randomized Algorithms and their Applications in Robust Optimization. 2014.
- Le, Vu Tuan Hieu: Commande Prédictive robuste par des techniques d'observateurs à base d'ensembles zonotropiques. 2012.
- Redondo González, Manuel Joaquín: Aplicaciones de Técnicas DC a la Identificación Paramétrica, Estimación de Estados y Conjuntos Invariantes en Sistemas no Lineales. 2012.