

## CURRICULUM VITAE ABREVIADO (CVA)

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

### Part A. PERSONAL INFORMATION

First name	MANUEL GIL		
Family name	ORTEGA LINARES		
Gender (*)	MALE	Birth date (dd/mm/yyyy)	.....
Social Security, Passport, ID number	.....		
e-mail	mortega@us.es	URL Web: <a href="http://www.etsi.us.es/~mortega">http://www.etsi.us.es/~mortega</a>	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-5463-2455	

(\*) Mandatory

#### A.1. Current position

Position	Full Professor		
Initial date	26/04/2019		
Institution	Universidad de Sevilla		
Department/Center	Ingeniería de Sistemas y Automática	ETS Ingeniería	
Country	Spain	Teleph. number	+34 954487356
Key words	Robust control, nonlinear control, predictive control, process control, power systems control		

#### A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2008-2019	Associate Professor / Universidad de Sevilla / Spain
1998-2008	Assistant Professor / Universidad de Sevilla / Spain

#### A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Ing. Industrial	U. Sevilla / Spain	1995
Dr. Ing. Industrial	U. Sevilla / Spain	2001

(Include all the necessary rows)

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

Manuel G. Ortega is full professor at the Systems Engineering and Automation, University of Seville. He received his Industrial Engineer degree and his Doctor Engineer degree with award in 1995 and 2001 respectively from the University of Seville. His main research areas have been focused on robust control, in particular on Hinf control, and on nonlinear control; both areas applied to process control, robotics, and aircraft control. His is co-author of more than 100 technical papers, including international journals, conferences proceedings, and book chapters. His h-index is 26 according to Google Scholar. He has supervised 7 PhD theses.

He has worked on many public competitive research projects, including a FP7 European project, in areas such as the process control and robotics. Recently he has started a new research line on the control of refrigeration systems. Actually, he is the leader of four public competitive research projects in that field.

He has also worked on research projects with companies, being the leader of most of them. Some projects addressed on modelling, control and optimization of power solar plant, including

thermal and high-concentration photovoltaic plants. The experience gained in those projects has contributed to the new lines of cold production and cold facilities management.

At the current time, M.G. Ortega is the main coordinator of the Control Engineering Thematic Group, under the Automatic Spanish Committee.

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

### **C.1. Publications** (*see instructions*)

1. **Journal paper.** Satué, M.G., Arahál, M.R., Acedo, L.F., Ortega, M.G. *Economic versus energetic model predictive control of a cold production plant with thermal energy storage*. Applied Thermal Engineering, Vol. 210, pp. 118309, 2022. (Q1 in Thermodynamics; and in Engineering, Mechanical).
2. **Journal paper.** Bejarano, G., Lemos, J.M., Rico-Azagra, J., Rubio, F.R., Ortega, M.G. *Energy Management of Refrigeration Systems with Thermal Energy Storage Based on Non-Linear Model Predictive Control*. Mathematics, Vol. 10, pp. 3167, 2022. (Q1 in Mathematics).
3. **Journal paper.** Arahál, M.R., Satué, M.G., Ortega, M.G. *Optimal chiller loading including transients*. Energy & Buildings, Vol. 253, pp. 111527, 2021. (Q1 in Engineering Civil; among others).
4. **Journal paper.** Bejarano, G, Ortega, M.G., Normey-Rico, J.E., Rubio, F.R. *Optimal control analysis and Practical NMPC applied to refrigeration systems*. ISA Transactions, Vol. 107, pp.90-106, 2020 (Q1 in Automation & Control Systems; among others).
5. **Journal paper.** Satué, M.G., Castaño, F., Ortega, M.G., Rubio, F.R. *Power feedback strategy based on efficiency trajectory analysis for HCPV sun tracking*. Renewable Energy, Vol. 161, pp. 65-76, 2020 (Q1 in Green & Sustainable Science & Technology, among others).
6. **Journal paper.** García, R., Orihuela, L., Millán, P., Rubio, F.R., Ortega, M.G. *Guaranteed Estimation and Distributed Control of Vehicle Formations*. International Journal of Control, Vol. 93, pp. 2-15, 2020 (Q2 in Automation & Control Systems).
7. **Journal paper.** Bejarano, G, Rodríguez, D., Lemos, J.M., Vargas, M., Ortega, M.G. *MINLP-based hybrid strategy for operating mode selection of TES-backed-up refrigeration systems*. International Journal of Robust and Nonlinear Control, Vol. 30, pp. 6091-6111, 2020. (Q2 in Automation & Control Systems).
8. **Journal paper.** Bejarano, G, Vargas, M., Ortega, M.G., Castaño, F., Normey-Rico, J.E. *Efficient simulation strategy for PCM-based cold-energy storage systems*. Applied Thermal Engineering, Vol. 139, pp. 419-431, 2018. (Q1 in Thermodynamics; and in Engineering, Mechanical).
9. **Journal paper.** Bejarano, G, Vivas, C., Ortega, M.G., Vargas, M. *Novel scheme for a PCM-based cold energy storage system. Design, modelling, and simulation*. Applied Thermal Engineering, Vol. 132, pp. 256-274, 2018. (Q1 in Thermodynamics; and in Engineering, Mechanical).
10. **Journal paper.** Bejarano, G, Vivas, C., Ortega, M.G., Vargas, M. *Suboptimal hierarchical control strategy to improve energy efficiency of vapour-compression refrigeration systems*. Applied Thermal Engineering, Vol. 125, pp. 165-184, 2017. (Q1 in Thermodynamics; and in Engineering, Mechanical).

**11. Journal paper.** Bejarano, G., Alfaya, J.A., Ortega, M.G., Vargas, M. *On the difficulty of globally optimally controlling refrigeration systems*. Applied Thermal Engineering, Vol. 111, pp. 1143-1157, 2017. (Q1 in Thermodynamics; and in Engineering, Mechanical).

**12. Journal paper.** Jurado, I., Ortega, M.G., Quevedo, D.E., Rubio, F., *An  $H^\infty$  suboptimal robust control approach for systems with uncertainties and data dropouts*. International Journal of Systems Science, Vol. 46-11, pp. 1971-1981, 2014. (Q1 in Computer Science, Theory & Methods; and in Operations Research & Managements Science).

**C.2. Congress**, indicating the modality of their participation (invited conference, oral presentation, poster)

**1. Oral presentation.** Satué, M.G., Acedo, L.F., Arahl, M.R., Ortega, M.G. *Economic MPC Optimization of a cold production plant with energy storage*. European Control Conference. London (UK). 2022

**2. Oral presentation.** Arahal, M.R., Satué, M.G., Ortega, M.G., Barrero, F. *Adaptive Predictive Stator Current Control of a Six-phase Drive*. European Control Conference. London (UK). 2022

**3. Oral presentation.** Bejarano, G., Rodríguez, D., Alfaya, J.A., Gil Vergel, J.D., Ortega, M.G. *Optimization and Cascade Robust Temperature Control of a Refrigerated Chamber*. 9th IFAC Symposium on Robust Control Design (ROCOND'18) and 2nd IFAC Workshop on Linear Parameter Varying Systems (LPVS'18). Florianópolis (Brasil). 2018.

**4. Oral presentation.** Bejarano, G., Alfaya, J.A., Rodríguez, D., Morilla, F., Ortega, M.G. *Benchmark for PID control of Refrigeration Systems based on Vapour Compression*. 3rd IFAC Conference on Advances in Proportional-Integral-Derivative Control. Ghent, Bélgica. 2018

**5. Oral presentation.** Rodríguez, D., Bejarano, G., Alfaya, J.A., Ortega, M.G. *Robust and Decoupling Approach to PID Control of Vapour-compression Refrigeration Systems*. 3rd IFAC Conference on Advances in Proportional-Integral-Derivative Control. Ghent, Bélgica. 2018

**6. Oral presentation.** Rodríguez, D., Alfaya, J.A., Bejarano, G., Ortega, M.G., Castaño, F. *Steady-state parameter estimation of an experimental vapour compression refrigeration plant*. European Control Conference. Aalborg (Dinamarca). 2016

**7. Oral presentation.** García, R., Orihuela, L., Millán, P., Ortega, M.G., Rubio, F.R. *Kalman-inspired distributed set-membership observers*. European Control Conference. Aalborg (Dinamarca). 2016

**8. Oral presentation.** Navas, S., Rubio, F.R., Ollero, P., Ortega, M.G. *Modeling and simulation of parabolic trough solar fields with partial radiation*. European Control Conference. Aalborg (Dinamarca). 2016

**9. Oral presentation.** García, R., Millán, P., Orihuela, L., Rubio, F.R., Ortega, M.G. *Agent-based guaranteed estimation and control of nonlinear systems*. European Control Conference (ECC). Linz - Austria. 2015

**10. Oral presentation.** Alfaya, J.A., Bejarano, G., Ortega, M.G., Rubio, F.R. *Multi-operating-point robust control of a one-stage refrigeration cycle*. European Control Conference (ECC). Linz - Austria. 2015

**11. Oral presentation.** García, R., Raffo, G.V., Ortega, M.G., Rubio, F.R. *Guaranteed Quadrotor Position Estimation Based on GPS Refreshing Measurements. Workshop on Advanced Control and Navigation for Autonomous Aerospace Vehicles.* Seville. 2015

**12. Oral presentation.** Raffo, G.V., Ortega, M.G., Rubio, F.R. *Nonlinear H-Infinite Controller for the Quad-Rotor Helicopter With Input Coupling.* 18th IFAC World Congress. Milan. 2011.

**C.3. Research projects**, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

1. *Gestión Óptima de la Demanda de Frío en Grandes Instalaciones (OCOLA).* RTI2018-101897-B-100. Ortega Linares, Manuel Gil (IP1) y Ruiz Arahal, Manuel (IP2) (Universidad de Sevilla). 2019-2021. 89298 EUR.

2. *Optimización de la Producción de Frío mediante Sistemas de Almacenamiento de Energía (OPF-SAE).* DPI2015-70973-R. Ortega Linares, Manuel Gil (Universidad de Sevilla). 2016-2018. 203280 EUR.

3. *Optimización y Control Robusto Multivariable de Sistemas de Refrigeración (OCROSIRE).* DPI2012-37580-C02-02. Ortega Linares, Manuel Gil (Universidad de Sevilla). 2013-2015. 152100 EUR.

4. *Control Óptimo de la Generación Híbrida de Frío Solar-Compresión de Vapor (COGESOL)* US-1381503. Rodríguez Rubio, Francisco / Ortega Linares, Manuel Gil (Universidad de Sevilla). 2022-2023 (Concedido). 90.000 EUR.

**C.4. Contracts, technological or transfer merits**, Include patents and other industrial or intellectual property activities (contracts, licenses, agreements, etc.) in which you have collaborated. Indicate: a) the order of signature of authors; b) reference; c) title; d) priority countries; e) date; f) Entity and companies that exploit the patent or similar information, if any

1. *THESTO. Desarrollo de Sistemas de Almacenamiento para Generación Directa de Vapor.* IP: Ortega Linares, Manuel Gil (Abengoa Solar New Technologies, S.A.). 2012-2015. 250000 EUR.

2. *Sistemas de Sales Fundidas para el Almacenamiento Térmico a Alta Temperatura.* IP: Ortega Linares, Manuel Gil (Abengoa Solar New Technologies, S.A.). 2010-2011. 138491,38 EUR.

3. *eFleet - Inteligencia y eficiencia energética en la gestión integral de flotas de vehículos eléctricos.* IP: Ruiz Arahal, Manuel (Azvi, S.A.). 2013-2015.

4. *DIANNA. Desarrollo e Investigación de nuevas tecnologías para la automatización de los procesos de montaje aeronáutico: Aplicación Automática de Sellantes.* IP: Rodríguez Rubio, Francisco (Industria Especializada Aeronáutica, S.A.). 2012-2014.

5. *Suitable Control Method for a System of Photovoltaic Concentration Modules.*  
Inventores: Ortega Linares, M.G, Rodríguez Rubio, F., Gerrero Cano, M., Noriega Gil, P.  
N. de publicación: ES2384936 Fecha de publicación: 16-07-2012  
N. de solicitud internacional: PCT/ES2012/070868 País de prioridad: España  
Fecha de concesión: 24-04-2013  
Entidad titular: ABENGOA Solar New Technologies, S.A.  
Países a los que se ha extendido: Internacional  
Empresa/s que la están explotando: ABENGOA Solar New Technologies, S.A.