

Part A. PERSONAL INFORMATION

CV date 20/10/2018

First and Family name	Matilde Santos Peñas		
Social Security, Passport, ID number		Age	
Researcher numbers	Researcher ID	K-7671-2014	
	Orcid code	0000-0003-1993-8368	

A.1. Current position

Name of University/Institution	Universidad Complutense de Madrid		
Department	Arquitectura de Computadores y Automática		
Address and Country	C/ Profesor García Santesmases 9; 28040-Madrid, Spain		
Phone number	913947620	E-mail	msantos@ucm.es
Current position	Catedrático de Universidad	From	23/09/2011
Espec. cód. UNESCO	1207.02		
Palabras clave	Intelligent Control, Modelling, Simulation, Pattern Recognition, Engineering & Industrial Applications, Renewable Energy		

A.2. Education

PhD	University	Year
PhD Physics	Universidad Complutense de Madrid	1994
MS Degree Physics	Universidad Complutense de Madrid	1986
MS Degree Literature	Universidad Complutense de Madrid	2007

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

Research segments: **4** (the last one from 2008 to 2013).

Supervised thesis (last ten years): **9**

Total cites: **1198** (google scholar)

Cites/year (since 2013): **137** (google scholar)

h-index: **18** (google scholar)

Q1 publications: **33**

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

Matilde Santos Peñas received her B.Sc. and M.Sc. degrees in Physics (Computer Engineering) and her Ph.D in Physics in 1994, from the University Complutense of Madrid (UCM). Since 1986 she has been with the Department of Computer Architecture and Systems Engineering at the UCM, where she is currently Full Professor in System Engineering and Automatic Control (since 2011).

She has worked in several National and European projects, focused on intelligent control (fuzzy, neural networks, evolutionary strategies) mainly applied to engineering and industrial applications. The last decade she has worked on autonomous vehicles (marine and aerial). She has also developed some soft computing application for making decision systems and has applied machine learning techniques for pattern recognition in different fields (fusion signals, medical diagnosis, informatic access detection, handwriting). She has recently published some papers on modelling, simulation and control in the renewable energy field, on wind turbines, both on land and offshore.

She has published many papers in international scientific journals and several book chapters. She coauthored a book on Artificial Intelligence (RaMa, 2005). She has supervised 10 PhDs and more than 60 Master projects.

She currently serves as member of the editorial board of Engineering Application of Artificial Intelligence (Elsevier), Complexity (Hindawi) journals and she is editor-in-chief assistant of Revista Iberoamericana de Automática e Informática Industrial. She serves as Co-Program chair and PC of numerous international conferences.

She has got different awards at conferences. She has been invited as plenary speaker to some international congresses. She has also given several courses and seminars at different universities, some of them abroad.

Regarding management tasks, she is a member of different national and international committees. She is the chair of the Evaluation Committee the National Agency for Quality Assessment and Accreditation of Spain (ANECA) for Academic Staff Recruitment Assessment Programme (PEP). She acts as an Expert Evaluators for The Spanish National Evaluation Agency (ANEP), H2020 projects (European Community), FONCyT (Fondo para la Investigación Científica y Tecnológica), among others. She is actually the coordinator of the national CEA Intelligent Control group. She was external examiner at Dublin City University four years. She is Member of the TC3.2 Committee of the IFAC (<http://tc.ifac-control.org/3/2>) Computational Intelligence in Control.

Her last research stay has been at The City, University of London (three months, 2018). She collaborates with other national and international researchers from different centers.

Her major research interests are: Intelligent Control (mainly fuzzy and neuro-fuzzy), Modelling and Simulation, Engineering applications of Soft Computing techniques, Pattern recognition, Renewable energies.

Part C. RELEVANT MERITS

C.1. Publications (including books) (last 20)

1. Santos, M., Calafat, M.A. (2019). Dynamic simulation of induced voltages in high voltage cable sheaths: Steady state. *Int. J. Electrical Power & Energy Systems* 105, 1-16 (Q1)
2. Aubin, V., Mora, M., & Santos-Peñas, M. (2018). Off-line writer verification based on simple graphemes. *Pattern Recognition*, 79, 414-426. (Q1)
3. V. San Juan, M. Santos, J. M. Andújar. Intelligent UAV map generation and discrete path planning for search and rescue, *Complexity*, Article ID 6879419, 17 pages, 2018 (Q1)
4. R. Naranjo, J. Arroyo, M. Santos, Fuzzy modeling of stock trading with fuzzy candlesticks, *Expert System with Applications*, 93, 15-27, 2018 (Q1)
5. J.E. Sierra, M. Santos, Modeling engineering systems using analytical and neural techniques: hybridization, *Neurocomputing*, 271, 70-83, 2018 (Q1)
6. J.C. Rojas, M. Mora, M. Santos, Neural networks ensemble for automatic DNA microarray spot classification, *Neural Computing and Applications*, 2017 (Q2/T1)
7. J.A. Romera, M. Santos, ParaTrough v1.0: Librería en Modelica para simulación de plantas termosolares, *Rev. Iberoam Automática e Informática Industrial* 14(4):412-423, 2017 (Q4)
8. C. Guevara, M. Santos, V. López. Data Leakage Detection Algorithm based on Task Sequences and Probabilities. *Knowledge-Based Systems*, 2017 (Q1)
9. J.C. Rojas, M. Santos, M. Mora. New internal index for clustering validation based on graphs, *Expert Systems with Applications*, 86, 334-349, 2017 (Q1)
10. P. García-Auñón, M. Santos, J.M. de la Cruz. Parameter selection based on fuzzy logic to improve UAV path-following algorithms. *Journal of Applied Logic*, 24, 62-75, 2017 (Q1)
11. J. Menoyo, M. Santos. Intelligent rudder control of an autonomous surface vessel. *Expert Systems with Applications* 55, 106-117, 2016. (Q1)
12. F. Alonso Zotes, M. Santos, Una revisión de técnicas de optimización heurística para el diseño de trayectorias interplanetarias en misiones espaciales. *Revista Iberoamericana de Automática e Informática Industrial*, 4, 1, 1-15, 2017 (Q4)
13. D. Romero-Laorden, J. Villazón-Terrazas, O. Martínez-Graullera, A. Ibáñez, M. Parrilla, and M. Santos Peñas. Analysis of parallel computing strategies to accelerate ultrasound imaging processes. *IEEE Trans. on Parallel and Distributed Systems*, 27, 12, 3429-3440, 2016 (Q1)
14. S. Moreno, M.G. Romana, M. Santos, Fuzzy model of vehicle delay to determine the level of service of two-lane roads. *Expert Systems With Applications* 54, 48-60, 2016 (Q1)
15. Oscar Hernández, J.P. San Martín, M.C, Garcia-Alegre, Matilde Santos, D. Guinea. Smart Building: Decision making architecture for thermal energy management. *Sensors*, 15(11), 27543-27568, 2015 (Q1)
16. J. Pérez-Rastelli, M. Santos. Fuzzy logic steering control of autonomous vehicles inside roundabouts, *Applied Soft Computing*, 35, 662-669, 2015 (Q1)

17. Farias, G; Dormido-Canto, S; Vega, J; Santos, M; Pastor, I; Fingerhuth, S; Ascencio, J. Iterative noise removal from temperature and density profiles in the TJ-II Thomson scattering, *Fusion Engineering and Design*, 89, 5, 761-765, 2014 (Q1)
18. M. Mikati, M. Santos, C. Armenta, Electric grid dependence on the configuration of a small-scale wind and solar power hybrid system, *Renewable Energy* 57, 587-593, 2013 (Q1)
19. M. Santos, J.A. Martín-H., V. López, G. Botella, Dyna-H: a heuristic planning reinforcement learning algorithm, *Knowledge-Based Systems*, 32, 28-36, 2012 (Q1)
20. F. Alonso Zotes, M. Santos, Particle swarm optimisation of interplanetary trajectories from Earth to Jupiter and Saturn, *Engineering Application of Artificial Intelligence* 25, 189-199, 2012 (Q1)

C.2. Research projects and grants

1. SELFNET: Framework for Self-Organized network management in virtualized and software defined networks (671672).
Organization: Horizonte 2020 (H2020-ICT-2014-2)
Coordinator: García Villalba, Luis Javier
Dates: 01/07/2015 al 30/06/2018
2. RAMSES: Internet Forensic platform for tracking the money flow of financially-motivated malware (700326).
Organization: Horizonte 2020 (H2020-FCT-2015)
Coordinator: García Villalba, Luis Javier
Dates: 01/09/2016 (3 years)
3. Red Temática de Control Inteligente
Organization: DPI2015-71320-REDT, Ministerio de Economía y Competitividad
Coordinator: José Manuel Andújar (UHU) and Matilde Santos (UCM)
Dates: 01/01/2016-31/12/2017
4. Sistema Autónomo para Localización y Actuación ante Contaminantes en el Mar)
Organization: CICYT, DPI 2013-46665-C1
Coordinator: Jesús Manuel de la Cruz García y Gonzalo Pajares Martinsanz
Dates: 01/01/2014-31/12/2016
5. Desarrollo de sistema submarino autónomo (AUV, autonomous underwater vehicle) para detección temprana de vertidos en líneas submarinas
Organization: IPT-2012-0157-310000
Coordinator: Jesús Manuel de la Cruz García
Dates: 01/01/2013-31/12/2015
6. Aplicación de la inteligencia artificial en los sensores y biosensores-2
Organization: PCI-AECID B/024393/09
Dates: 1/01/2010-31/12/2010
Coordinator: Matilde Santos Peñas (UCM)
7. Sistema de vigilancia, búsqueda y rescate en el mar mediante colaboración de vehículos autónomos marinos y aéreos
Organization: CICYT, DPI2009-14552-C02-01
Coordinator: Jesús Manuel de la Cruz García
Dates: 2010-2014

C.3. Contracts

- Sistema de control de actitud de nano/micro-satélites. INTA (Instituto Nacional de Técnica Aeroespacial, Contracts 177-2010, 01/09/2010 al 01/09/2012
- Predicción de periodo quiescente en buques. Ministerio de Defensa. C-150-2009, Programa SI0705-EDA European Defence Agency, 09/07/2009 al 15/12/2009
- Visión Estereoscópica para Auto-Rover: Investigación aplicada de autonomía basada en imágenes para ROVER de exploración planetaria. TCP Sistemas e Ingeniería S.L., contract 408-2008 and contracts 458-2007, 01/01/2008 al 31/12/2009
- Metodología para los Entornos de Modelado y Simulación Distribuidos. INDRA SISTEMAS S.A., contracts 23-2006, 1/12/2005 al 30/11/2007

- Evaluación de técnicas de inteligencia artificial para toma de decisiones y optimización de estrategia. EADS-CASA (contracts 353-2005, 1/09/2005 al 30/06/2007)

C.4: Evaluation

- President (currently), Secretary and member of the committee of the National Agency for Quality Assessment and Accreditation of Spain (ANECA), for Academic Staff Recruitment Assessment Programme (PEP), since 2009
- Evaluator for the National Evaluation and Foresight Agency (ANEP), State Department of Research of the Ministry of Science and Innovation. Scientific/technical evaluation of the units, teams and research proposals of projects of the National Plan, since 2009
- Evaluator for the National Evaluation and Foresight Agency (ANEP). National Programme for Recruitment and Incorporation of Human Resources
- External Examiner at Dublin City University (Electronic Engineering), 2013/14 al 2016/17

C.5 Editorial board

- Editorial board of RIAI Journal (SCI-indexed Journal, Q4), since 2007. Editorial co-chief (2018)
- Editorial board of EAAI Journal (SCI-indexed Journal, Q1), since 2009
- Editorial board of Complexity Journal (SCI-indexed Journal, Q1), since 2018

Reviewer of a selection of SCI-indexed scientific journals

C.6 Awards

- UCM Award Innovative Idea. IV Contest of Innovative Ideas and New Technology-Based Companies. OTRI, Rectorado de Investigación y Política científica, UCM, 20/12/2010
- Best Intelligent Control Doctoral Thesis:
 - 2014, Gonzalo Farias Castro, Comité Español de Automática (CEA), Mathworks
 - 2013, Fernando Alonso Zotes, Comité Español de Automática (CEA), Mathworks
 - 2012, Joshué Pérez Rastelli. Comité Español de Automática (CEA), Mathworks
- Best student paper: I Jornadas de Investigación en Ciberseguridad JNIC 2015
- Best Intelligent Control poster paper (XXXV Jornadas de Automática 2014)
- Best Poster Paper ISKE 2013
- Excellent FLINS 2010 Conference Poster Paper
- The Second Best IEEE ISKE 2009 Conference Poster Paper
- The Third Best IEEE ISKE 2009 Conference Poster Paper
- The Best IEEE ISKE 2008 Conference Poster Paper
- Best Intelligent Control poster paper (XXVIII Jornadas de Automática 2007)
- Best Intelligent Control poster paper (XXVI Jornadas de Automática 2005)

C.7 Others

- Reviewer of a selection of SCI-indexed scientific journals
- Board of Directors CEA (Spanish Committee of Automatic)
- Coordinator of the national Group of Intelligent Control, 2014-2018, Spanish Committee of Automatic
- Member of the TC3.2 Committee of the IFAC (<http://tc.ifac-control.org/3/2>), Computational Intelligence in Control, from 2009 to date
- Chair (Head) Doctoral Programme:
 - System Engineering and Automatic Control, UNED-UCM, 2002/03-2009/10
 - Computer Architecture and Automatic Control, UCM, 1997/98 to 2003/04
 - Student Access to University Programme, Electrical Engineering, 1998/99 to 2011/12
- International Conferences Program Committee
- Conferences Local Organizing Committee