



Part A. PERSONAL INFORMATION

CV date

July 27th 2023

First and Family name Jesús García Herrero

Researcher numbers	Researcher ID	B-7135-2018
	Orcid code	0000-0003-1768-2688

A.1. Current position

Name of University/Institution	UNIVERSIDAD CARLOS III DE MADRID		
Department	ESCUELA POLITÉCNICA SUPERIOR		
Address and Country	Avda. Universidad Carlos III, 22. Colmenarejo 28270. Madrid		
Phone number	E-mail	jgherrer@inf.uc3m.es	
Current position	Professor	From	March 2020
Espec. cód. UNESCO			
Palabras clave	Artificial Intelligence, Evolutionary Computation, Machine Learning, Information Fusion, Air Traffic Management, Machine Vision		

A.2. Education

PhD	University	Year
Telecommunications Engineer Telecomunicación	Universidad Politécnica Madrid	1996
Doctor Engineer in Telecommunications	Universidad Politécnica Madrid	2001

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

- Supervised PhD Dissertations: 8
- 4 research periods of 6 years, last one 2016-2021, 1 period of technology transfer
- Publication numbers summarized in the table:

Papers in journals with JCR impact factor	71 (30Q1)
Papers in other international journals	10
Books (co-author or editor)	12
Book chapters	24
Papers in international conferences	190

- H-Index: in Google Scholar H-28, with more than 6000 cites, in Scopus H-18 with more than 1200 cites

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

His research interests are artificial intelligence, data and information fusion, surveillance systems, computer vision, air traffic management, navigation systems and autonomous vehicles. In these areas, including theoretical and applied aspects, he has co-authored more than 60 articles in international journals (52 indexed in JCR), 10 book chapters and 160 communications to conferences. He has participated in a large number of research projects and technology transfer contracts in the research groups to which he has belonged at the Carlos III and Polytechnic Universities of Madrid. He has collaborated with national and international companies and institutions in the areas of application in which he focuses his research (data fusion in air and maritime traffic control systems, navigation, video surveillance, location systems, etc). In addition to numerous technology transfer projects and applied research projects with companies, he is co-inventor in three patents. He has led as principal investigator an international project of the ONR-G agency (USA), four consecutive projects of the National Plan of Science and Technology, a project of the CENIT program and is responsible researcher in more than ten contracts with companies. Regarding international projection, he is member of several advisory and organization committees in organizations such as IEEE (senior member), ISIF and NATO; I belong to the editorial board of the journals Information Fusion (Elsevier) and ISRN Artificial Intelligence (Hindawi);

president of the Spanish chapter of IEEE-AES since 2013, and Spanish representative in different NATO-STO working groups in the area of Sensor and Information Fusion since 2011. I am also co-responsible for the Applied Artificial Intelligence Research Group (GIAA) at Universidad Carlos III de Madrid, since 2005.

He has co-organized a number of special sessions and workshops (since 2004) at international conferences such as the International Conference on Information Fusion, Distributed Computing and Artificial Intelligence or Hybrid Systems in Artificial Intelligence. I am a reviewer of numerous scientific journals and program committees of international conferences, being a member of the program committee of numerous international conferences on a continuous basis: International Conference on Information Fusion (since 2006), IEEE workshop on Sensor Data Fusion (since 2011), International conference on Information Systems (IADIS) (since 2009), Intelligent Systems for context-based Information Fusion (since 2011). He has been co-responsible for the local organization of several international events in Spain, such as the NATO Advanced Study Institute workshop on "Prediction and Recognition of Piracy Efforts Using Collaborative Human-Centric Information Systems". Salamanca 11-20 Sept 2011, NATO STO SET-157

Part C. RELEVANT MERITS

C.1. Recent publications

- M. Soleymannejad, D.S. Zadeh, B. Moshiri, E.N. Sadjadi, J. García, J.M. Molina. State Estimation Fusion for Linear Microgrids over an Unreliable Network. *Energies* 2022, 15(6), 2288.
- J.P. Llerena-Caña, J. García-Herrero, J. M. Molina. An approach to forecasting and filtering noise in dynamic systems using LSTM architectures *Neurocomputing*, 2022, in press
- Daniel Amigo, David Sánchez Pedroche, Jesús García, José Manuel Molina "Segmentation optimization in trajectory-based ship classification" *Journal of Computational Science*. 2022 in press
- J.P. Llerena-Caña, J. García-Herrero, J. M. Molina. "Forecasting nonlinear systems with LSTM: analysis and comparison with EKF", *Sensors*, 21(5), 1805, 2021.
- Daniel Amigo, David Sánchez Pedroche, Jesús García, José Manuel Molina Review and classification of trajectory summarisation algorithms: From compression to segmentation. October 30, 2021 *International Journal of Distributed Sensor Networks*
- Daniel Medina, Jordi Vilà-Valls, Anja Hesselbarth, Ralf Ziebold, Jesús García. "On the Recursive Joint Position and Attitude Determination in Multi-Antenna GNSS Platforms". *Remote. Sens.* 12(12): 1955 (2020)
- "Architecture for Trajectory-Based Fishing Ship Classification with AIS Data" David Sánchez Pedroche, Daniel Amigo, Jesús García, José Manuel Molina. *Sensors* 2020, 20(13), 3782;
- "Real evaluation for designing sensor fusion in UAV platforms". Jesus Garcia, Jose M. Molina, Jorge Trincado. *Information Fusion*. Vol. 63, 2020, Pages 136-152
- "Second-order statistics analysis and comparison between arithmetic and geometric average fusion: Application to multi-sensor target tracking" Tiancheng Li HongqiFan Jesús García Juan M Corchado *Information Fusion* Volume 51, November 2019, Pages 233-243
- "How effective are smooth compositions for predictive control of TS fuzzy models Ebrahim Navid Sadjadi", Ebrahim Sadjadi, Mohammad B. Menhaj Jesús García, José M. Molina. *International Journal of Fuzzy Systems*. 2019
- "Knowledge Extraction and Improved Data Fusion for Sales Prediction in Local Agricultural Markets", Washington R. Arias, Jesus García, José M. Molina. *Sensors* 2019, 19(2), 286; <https://doi.org/10.3390/s19020286>
- Washington R: Padilla, Jesús García, José M. Molina. Improving time series forecasting using information fusion in local agricultural markets. *Neurocomputing*, 452: 355-373 (2021).
- "On Approximation Properties of Smooth Fuzzy Models" Ebrahim Navid, Jesús García, José M. Molina. *International Journal of Fuzzy Systems*. 2018 in press



- “Player: An open source tool to simulate complex maritime environments to evaluate data fusion performance” Alvaro Luis, José M. Molina, Jesús García Simulation Modelling Practice and Theory. 2017 in press
- “MONEDA: Scalable Multi-Objective Optimization with a Neural Network-based Estimation of Distribution Algorithm”. Journal of Global Optimization. Vol. 2016.
- “A Stopping Criterion for Multi-Objective Optimization Evolutionary Algorithms”. Information Sciences (in press) Luis Martí, Jesús García, Antonio Berlanga, J.M. Molina.
- “MONEDA: Scalable Multi-Objective Optimization with a Neural Network-based Estimation of Distribution Algorithm”. Journal of Global Optimization. Vol. 2016.
- “Context-Enhanced Information Fusion. Boosting Real-World Performance with Domain Knowledge”. Editors: Snidaro, L., García, J., Llinas, J., Blasch, E. (Eds.). Springer 2016
- “Bridging from Syntactic to Statistical Methods: Classification with Automatically Segmented Features from Sequences”. Julia Sidorova, Jesus Garcia. Pattern Recognition. 2015
- “Context-based information fusion: a survey and discussion”. Lauro snidaro, Jesús García, James Llinas Information Fusion Volume 25, September 2015, Pages 16–31
- “Model-based trajectory reconstruction with IMM smoothing and segmentation” Jesús García, Juan A. Besada, José M. Molina, Gonzalo de Miguel Information Fusion (in press) Volume 22, March 2015, Pages 127–140

C.2. Research projects and grants

- Conceptos de vehículos Aéreos en la Ciudad: Transporte, Urbanismo y Seguridad (CACTUS). AGENCIA ESTATAL DE INVESTIGACION (AEI) Fecha inicio: 01/09/2021, Fecha fin: 31/08/2024. Investigador Principal UC3M: Jesús García Herrero. Tipo: Proyecto Coordinado de Investigación Nacional del plan nacional.
- Solutions for Intelligent Monitoring based on drone data and AI Tools (SIMBAT). AGENCIA ESTATAL DE INVESTIGACION (AEI) Fecha inicio: 01/12/2021, Fecha fin: 30/11/2023, Investigador Principal UC3M: Jesús García Herrero. Tipo: Proyecto Coordinado de Investigación Nacional de la convocatoria “Pruebas de Concepto”.
- Gestión de Tráfico de Aeronaves no Tripuladas y Tecnologías de Soporte a la Operación (UTMOST). Ministerio. Investigador Principal: Jesús García Herrero. Ministerio de Economía y Competitividad, Plan nacional de I+D. Programa de Investigación, Orientada a los Retos de la Sociedad. Enero 2018-Diciembre 2020. Tipo: Proyecto Coordinado de Investigación Nacional.
- Monitorización Avanzada en Puertos y Aeropuertos: Conceptos, Herramientas y Evaluación (MAPACHE). Ministerio. Investigador Principal: Jesús García Herrero. Ministerio de Economía y Competitividad, Plan nacional de I+D. Programa de Investigación, Orientada a los Retos de la Sociedad. Referencia TEC2014-57022-C2-2-R. Enero 2015-Diciembre 2017. Tipo: Proyecto Coordinado de Investigación Nacional.
- Sistema Autónomo para La Intervención en Emergencias (SALINE). Ministerio de Economía y Competitividad, convocatoria Retos-Colaboración 2016, coordinado por IXION S.L. Mayo 2015-Abril 2018
- Submarino Autónomo para la Inspección de instalaciones Off-shoRe (SAILOR) Ministerio de Economía y Competitividad, convocatoria Retos-Colaboración 2016, coordinado por IXION S.L. Mayo 2015-Abril 2018
- Sistema Autónomo de Vigilancia y Seguridad basado en multirotors (ADVISE) Ministerio de Economía y Competitividad, convocatoria Retos-Colaboración 2016, coordinado por IXION S.L. Mayo 2015-Abril 2018
- NICOP: Design and Architecture of an Adaptive Information Fusion/Information Integration (IF/II). Investigador principal: Jesús García Herrero
Entidad financiadora: Office of Naval Research International Field Office Europe. Programa NICOP. Duración: 1/2/2014 – 31/07/2015. Financiación recibida (en euros): 28.426,78

C.3. Contracts

- Support for OTR (Opportunity Traffic Reconstructor)”. EUROCONTROL. Fecha de inicio y fin: Julio 2020, Año Fin: Julio 2021. Investigador responsable: Jesús García Herrero,



- José Manuel Molina López. Empresa/Administración financiadora: EUROCONTROL. Entidades participantes: EUROCONTROL, Universidad Carlos III de Madrid. Duración: 1/04/2017-31/07/2019. Precio total del proyecto: 200.000 euros
- Diseño y Análisis del Sistema de Fusión de Datos Multisensor en el Programa Scomba F-110. Investigador responsable: Jesús García Herrero, José Manuel Molina López. Empresa/Administración financiadora: Navantia. Entidades participantes: Navantia, Universidad Carlos III de Madrid. Duración: 1/04/2017-31/07/2019. Precio total del proyecto: 120.000 euros
 - Diseño e implementación del Sistema de Fusión de Datos Multisensor. Investigador responsable: Jesús García Herrero, José Manuel Molina López. Empresa/Administración financiadora: DEIMOS SPACE, S.L.U. Entidades participantes: Deimos Space, Universidad Carlos III de Madrid. Duración: 10/09/2012-09/07/2013. Precio total del proyecto: 117.657,12 euros
 - Diseño e Implementación del Proceso de Fusión de Datos del programa SIGINT. Investigador principal (nombre y apellidos): Jesús García Herrero, José M. Molina. Entidad financiadora: AIRBUS GROUP DEFENSE & SPACE. Duración: 1/2/2013-30/09/2014. Financiación recibida (en euros): 114.841,00
 - Aplicación de Tecnologías Líder a aeronaves no tripuladas para I+D en ATM, ATLÁNTIDA. Investigador responsable: Jesús García, José M. Molina López. Empresa/Administración financiadora: TCP Sistemas. Entidades participantes: TCP, Universidad Carlos III de Madrid. Duración: 01/01/2007-31/12/2010. Total: 100000 euros

C.4. Patents

- Inventors: JOSE MANUEL MOLINA LOPEZ; **BERLANGA**, A. ; JESUS GARCIA HERRERO; PATRICIO, M. A. ; ALVARO LUIS BUSTAMANTE
Título: Herramientas software de consulta web mediante el despliegue de servicios
N. de solicitud: M-008733/2011. Fecha de prioridad: 01/01/2011
Entidad titular: UNIVERSIDAD CARLOS III DE MADRID
- Inventors: V. QUINTANA; **BERLANGA**, A. ; PATRICIO, M. A. ; JESUS GARCIA HERRERO; JOSE MANUEL MOLINA LOPEZ
Título: Procedimiento para la captura y seguimiento de objetos y dispositivo para llevar a cabo dicho procedimiento.
N. de solicitud: 200900538. Fecha de prioridad: 26/02/2009
Entidad titular: UNIVERSIDAD CARLOS III DE MADRID
- Inventors: A. LUIS-BUSTAMENTE; **BERLANGA**, A. ; PATRICIO, M. A. ; JESUS GARCIA HERRERO; JOSE MANUEL MOLINA LOPEZ
Título: Método de Codificación y Compresión Interframe de Video con JPEG2000.
N. de solicitud: 200900262. Fecha de prioridad: 29/01/2009
Entidad titular: UNIVERSIDAD CARLOS III DE MADRID

C.5 Awards

- Doctorate Extraordinary Award. E.T.S.I. de Telecomunicación, Universidad Politécnica de Madrid. January 2004.
- Award Luis Azcárraga of research about aeronautical infrastructures: Grupo de Procesado de Datos y Simulación, por el trabajo: "Tratamiento de Datos Radar". Institution: Fundación AENA. VI Edición. Mayo 2001.

C.6 Others

- Chair of Spanish Chapter IEEE–Aerospace and Electronics Systems Society 2013-2019. Senior Member since 2012
- Appointed national representative in task groups NATO STO IST-106-RTG-051. *Task Group on Information Filtering and Multi-source Information Fusion*. Junio 2011-Junio 2014., IST-132/RTG-063 "Multi-Level Fusion of Hard and Soft Information", 2015-2017
- Member of Editorial board of journals Information Fusion (Elsevier) and Perspectives of Information Fusion (ISIF)