

Part A. PERSONAL INFORMATION

CV date	18/3/23
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First and Family name	José Manuel Molina López		
Researcher codes	Open Researcher and Contributor ID (ORCID**)	0000-0002-7484-7357	
	WoS Researcher ID (*)	B-1956-2008	

(*) *Optional*
(**) *Mandatory*

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	918561314	E-mail	molina@ia.uc3m.es
Current position	Full professor	From	Dic de 2007
Key words	Artificial Intelligence, Evolutionary Computation, Machine Learning, Information Fusion, Air Traffic Management, Machine Vision		

A.2. Education

PhD, Licensed, Graduate	University	Year
Doctor Ingeniero de Telecomunicación	Universidad Politécnica de Madrid (UPM)	1997
Ingeniero de Telecomunicación	Universidad Politécnica de Madrid (UPM)	1993

A.3. General indicators of quality of scientific production (see instructions)

- Directed Theses: 18
- 4 research periods (sexenios), last one: 2013-2018
- Summary of publications:

Journals indexed in JCR	103 (36 Q1)
Other journals	31
Books (co-author and/or editor)	12
Books chapters	27
Papers in international conferences	220

- Cites: In Google Scholar: index H-36, more than 6000 cites, Scopus: H-22, more than 2000 cites

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

Ph.D. in telecommunications engineering from the UPM, professor in the area of Computer Science and Artificial Intelligence at the Carlos III University of Madrid and director of the GIAA group. Previously, he was director of the Computer Science department, director of the doctorate in Computer Science and Technology of said University, and held the positions of Vice-Rector for Students, Residences and Cultural Activity, attached to the Vice-Rector of the Colmenarejo campus and Deputy Director of the Engineering degree Computing.

He is currently the director of the Applied Artificial Intelligence research group (www.giaa.inf.uc3m.es) where he develops various public and private research projects, focused on the application of Artificial Intelligence techniques to various engineering problems. He is the principal investigator in public projects financed by the CICYT, the Ministry of Public Works, in five projects of the CENIT initiative and a macro-project of the Community of Madrid in the biotechnology area. He is the author of more than 100 articles in international journals with an impact index and of more than 200 presentations at international congresses, of 16 books and of various collaborations in collective works. His areas of interest are focused on Artificial Intelligence topics such as agents, fuzzy logic, evolutionary computing and neural networks, and their application to engineering topics such as artificial vision, multisensor



systems and signal processing, and their application in the field of context-aware systems and user-centered applications for access to information and digital services.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

- "Segmentation optimization in trajectory-based ship classification", D. Amigo, D. Sánchez, J. García, J. M. Molina. *Journal of Computational Science* 59: 101568 (2022).
- "An approach to forecasting and filtering noise in dynamic systems using LSTM architectures", J.P. Llerena-Caña, J. García-Herrero, J. M. Molina. *Neurocomputing*. Volume 500, pp 637-648, 21 August 2022.
- "Variational autoencoders for anomaly detection in the behaviour of the elderly using electricity consumption data", D. Gonzalez, M. A. Patricio, A. Berlanga, J. M. Molina. *Expert Systems: The Journal of Knowledge Engineering*. 39 (4), 2022.
- "Simulation in real conditions of navigation and obstacle avoidance with PX4/Gazebo platform", J. García-Herrero; J. M. Molina. *Personal and Ubiquitous Computing*. 26(4): 1171-1191 (2022).
- "A Super-resolution Enhancement of UAV Images based on a Convolutional Neural Network for Mobile Devices", M. A. Patricio; D. González; A. Berlanga; J. M. Molina. *Personal and Ubiquitous Computing*. 26(4): 1193-1204 (2022).
- "Review and classification of trajectory summarization algorithms: from compression to segmentation", D. Amigo, D. Sánchez, J. García-Herrero, J. M. Molina. *International Journal of Distributed Sensor Networks*. Volume 17, Number 10, October 2021.
- "Perception of Artificial Intelligence in Spain". I. Albarrán-Lozano, J.M. Molina, C. Gijón. *Telematics and Informatics*, vol 63. <https://doi.org/10.1016/j.tele.2021.101672>
- "Architecture for Trajectory-Based Fishing Ship Classification with AIS Data" D. Sánchez Pedroche, D. Amigo, J. García, J. M. Molina. *Sensors* 20(13), 2020.
- "Real evaluation for designing sensor fusion in UAV platforms". J. Garcia, J. M. Molina, J. Trincado. *Information Fusion*, Vol. 63, 136-152, 2020.
- "The application of analytic hierarchy process to implement collaborative governance process: The allocation of the urban structural funds in the city of Madrid". Losada, R., Sánchez Medero, R., Berlanga A., Molina, JM. *J Multi-Crit. Decis Anal*, pp. 1-16. 2020
- "How effective are smooth compositions for predictive control of TS fuzzy models Ebrahim Navid Sadjadi", E. Sadjadi, M. B. Menhaj J. García, J. M. Molina. *International Journal of Fuzzy Systems*. 2019
- "Knowledge Extraction and Improved Data Fusion for Sales Prediction in Local Agricultural Markets", Washington R. Arias, J. García, J. M. Molina. *Sensors*, 19(2), 286; 2019. <https://doi.org/10.3390/s19020286>
- "Developing Enhanced Conversational Agents for Social Virtual Worlds", D. Griol, A. Sanchis, J. M. Molina, Z. Callejas. *Neurocomputing* 354: 27-40, 2019.
- "Thingier.io: an Open Source Platform for Deploying Data Fusion Applications in IoT environments", M. A. Patricio; A. Luis; J. M. Molina. *Sensors* 19(5): 1044, 2019.
- "Combining speech-based and linguistic classifiers to recognize emotion in user spoken utterances". D. Griol, J. M. Molina, Z. Callejas. *Neurocomputing* 326-327:132-140, 2019.
- "On Approximation Properties of Smooth Fuzzy Models", E. Navid Sadjadi, J. García, J. M. Molina, Z. Hatami. *International Journal of Fuzzy systems*. 20(8): 2657-2667, 2018.
- "Agent-based Simulation with Netlogo to Evaluate Aml Scenarios", N. Sanchez-Pi, J. Carbo, J. M. Molina. *Journal of Simulation*. 12:1: 42-52, 2018.
- "Crowd-based ambient assisted living to monitor elderly health in outdoor settings", A. Cristina-Bicharra, C. Vivacqua, N. Sanchez-Pi, L. Martí, J. M. Molina. *IEEE Software*. 34(6): 53-57 (2017).
- "Player: An Open Source Tool to Simulate Complex Maritime Environments to Evaluate Data Fusion Performance", A. Luis, J. M. Molina, J. García. *Journal of Simulation Modeling Practice and Theory* Volume 76, August 2017.
- "Incorporating Android conversational agents in m-learning apps", D. Griol, J. M. Molina, Z. Callejas. *Expert Systems*. Volume 34, Number 1, February 2017.



- “MONEDA: Scalable Multi–Objective Optimization with a Neural Network–based Estimation of Distribution Algorithm”, L. Martí, J. García, A. Berlanga, J.M. Molina. *Journal of Global Optimization*. 66(4): 729-768, 2016.
- “A Stopping Criterion for Multi–Objective Optimization Evolutionary Algorithms”, L. Martí, J. García, A. Berlanga, J.M. Molina. *Information Sciences*, Volumes 367–368, Pages 700–718, 1 November 2016.
- “Anomaly Detection based on Sensor Data in Petroleum Industry Applications”, L. Martí, N. Sanchez-Pi, J. M. Molina, Ana C. Bicharra. *Sensors*. 15 (2), 2774-2797, 2015.
- “Model-Based Trajectory Reconstruction with IMM Smoothing and Segmentation”. J. García, J. M. Molina, J. A. Besada, G. de Miguel. *Information Fusion*. Volume 22, pp 127-140, March 2015.
- “Context-based multi-level information fusion for harbor surveillance Information Fusion”. J. Gómez, M. Serrano, J. García, J. M. Molina, G. Rogova. *Information Fusion*. Volume 21, pp 173-186, January 2015.

C.2. Research projects

TITLE: GENOBIA-CM. Diseño, mediante inteligencia artificial, de algoritmos predictivos para la identificación de individuos en riesgo de desarrollar sobrepeso/obesidad y sus patologías asociadas: Aportación del análisis genético.

Principal investigator: José M. Molina

Cientes/Entidad que subvenciona: CAM (B2017/BMD-3773)

Año Inicio: January 2018, Año Fin: January 2022

TITLE: Futuro de la banca line en la era post-COVID-19.

Principal investigator: C. Gijón

Cientes/Entidad que subvenciona: Santander Financial Institute - Fundación UCEIF

Año Inicio: January 2021, Año Fin: December 2021

FUNDINGS: 12.000 €

TITLE: Gestión de Trafico Aéreo de Aeronaves no Tripuladas y Tecnologías de Soporte a la Operación

Principal investigator: Jesús García y José M. Molina

Cientes/Entidad que subvenciona: MINISTERIO DE INDUSTRIA, ECONOMIA Y COMPETITIVIDAD (TEC2017-88048-C2-2-R)

Año Inicio: January 2017, Año Fin: January 2020

FUNDINGS:Universidad Carlos III de Madrid: 87.120,00 €

TITLE: Técnicas de estimación de actividad para servicios en espacios inteligentes (TEASE)

Principal investigator: José M. Molina

Cientes/Entidad que subvenciona: MINISTERIO DE ECONOMIA Y COMPETITIVIDAD (TEC2012-37832-C02-01)

Año Inicio: January 2013, Año Fin: December 2015

FUNDINGS:Universidad Carlos III de Madrid: 30.420,00 €

TITLE: Integración de Técnicas de Fusión e Interpretación para el Desarrollo de Servicios basados en Estimación de Actividad en Espacios Inteligentes: INFUSA

Principal investigator: José M. Molina

Cientes/Entidad que subvenciona: CICYT (TIN2011-28620-C02-01)

Año Inicio: December 2011, Año Fin: December 2012

FUNDINGS:Universidad Carlos III de Madrid: 10.164,00 €

TITLE: CONTEXTS: Conceptos y Tecnologías para el Desarrollo de Servicios Contextuales.

Principal investigator: José M. Molina

Cientes/Entidad que subvenciona: CAM (S2009/TIC-1485)

Año Inicio: January 2010, Año Fin: December 2014

FUNDINGS:Universidad Carlos III de Madrid: 203.838,00 €



TITLE: INTEGRA: Investigación en Tecnologías para la Gestión de la Migración.

Principal investigator: José M. Molina

Clientes/Entidad que subvenciona: Centro para el Desarrollo Tecnológico Industrial (CDTI), Ministerio de Ciencia e Innovación. A través de art. 83 con Amper Sistemas.

Tipo: Programa CENIT (iniciativa Ingenio 2010).

Coordinador: Telvent Interactiva

Año Inicio: January 2008, Año Fin: December 2011

FUNDINGS: Universidad Carlos III de Madrid: 315.000,00 €

TITLE: SEDUCE: Sistemas para la Detección de Explosivos en Infraestructuras y Centros Públicos.

Principal investigator: José M. Molina

Clientes/Entidad que subvenciona: Centro para el Desarrollo Tecnológico Industrial (CDTI), Ministerio de Ciencia e Innovación. A través de art. 83 con PORTEL.

Tipo: Programa CENIT (iniciativa Ingenio 2010).

Coordinador: PORTEL Servicios Telemáticos

Año Inicio: January 2008, Año Fin: December 2011

FUNDINGS: Universidad Carlos III de Madrid: 400.000,00 €

TITLE: LOCATIL: Técnicas de fusión de sensores y razonamiento para servicios basados en localización y contexto: aplicacion a AAL

Principal investigator: José M. Molina

Clientes/Entidad que subvenciona: CICYT (TIN2008-06742-C02-02/TSI)

Año Inicio: December 2008, Año Fin: December 2011

FUNDINGS: Universidad Carlos III de Madrid: 57.400,00 €

C.3. Contracts, technological or transfer merits

- Title: Support for OTR (Opportunity Traffic Reconstructor)". EUROCONTROL. Fecha de inicio y fin: July 2020, Año Fin: July 2021. Principal investigator: 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. Fundings: 200.000 euros
- Title: Diseño y Análisis del Sistema de Fusión de Datos Multisensor en el Programa Scomba F-110. Principal investigator: 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. Fundings: 120.000 euros
- Title: Diseño e implementación del Sistema de Fusión de Datos Multisensor. Principal investigator: 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. Fundings: 117.657,12 euros
- Title: Diseño e Implementación del Proceso de Fusión de Datos del programa SIGINT. Principal investigator: Jesús García Herrero, José M. Molina. Entidad financiadora: AIRBUS GROUP DEFENSE & SPACE. Duración: 1/2/2013-30/09/2014. Fundings (euros): 114.841,00

C.4. Patents

- Inventors: JOSE MANUEL MOLINA LOPEZ; BERLANGA, A. ; JESUS GARCIA HERRERO; PATRICIO, M. A. ; ALVARO LUIS BUSTAMANTE Title: Herramientas software de consulta web mediante el despliegue de servicios Nº: 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. Title: Procedimiento para la captura y seguimiento de objetos y dispositivo para llevar a cabo dicho procedimiento. Nº: 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. Title: Método de Codificación y Compresión Interframe de Video con JPEG2000. N°: 200900262. Fecha de prioridad: 29/01/2009 Entidad titular: UNIVERSIDAD CARLOS III DE MADRID

C.6 Others

- Teaching of more than 15 different subjects in undergraduate, first and second cycle have been taught at the Carlos III University of Madrid. Teaching in 9 Official Masters and 3rd Cycle studies, 10 Humanities courses. Coordination of 15 subjects.
- Participation in 11 Teaching Innovation Projects, 46 doctoral thesis courts. Coordinator and / or organizer of more than 30 courses.
- Member of the Scientific Committee and / or Program Committee in more than 200 conferences.
- Evaluation of research projects since 1998.