Part A. PERSONAL INFORMATION

CV date	12/04/2021

First and Family name	David Molina García		
Social Security, Passport, ID number	04619410K	Age	33 (09/06/87)
Researcher codes	WoS Researcher ID	G-2814-2017	
	Código Orcid	0000-0002-6104-3894	

A.1. Current position

Name of University/Institution	Universidad de Castilla-La Mancha		
Department	Mathematics		
Address	Facultad de Educación, Ronda de Calatrava Nº 3, C. P. 13071, Ciudad Real (Ciudad Real)		
Phone nomber	+34617641982	E-mail	david.molina@uclm.es
Web	http://matematicas.uclm.es/molab/person/?idpersonal=327		
Current position	Assistant Professor	Fecha inicio	2020
UNESCO codes	120304, 120903, 240401, 320101		
Key words	Mathematical oncology, Biostatistics, Artificial Intelligence.		

A.2. Education

Degree/MSc/PhD	University	Years
Degree in Mathematics	Universidad Autónoma de Madrid	2005/2010
Degree in Computer Science	Universidad Autónoma de Madrid	2005/2010
MSc in Mathematics	Universidad Autónoma de Madrid	2010/2011
MSc in Secundary Education	Universidad de Castilla-La Mancha	2011/2012
PhD in Mathematics	Universidad de Castilla-La Mancha	2012/2016

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

I am an Associate Professor of Didactics of Mathematics at University of Castilla-La Mancha (Spain) and an Applied Mathematics, Computer Science and Didactics of Mathematics researcher. During my PhD, I made proposals focused on Discrete Mathematics and Machine Learning techniques. However, in the last years I have move to Mathematical Oncology research at MOLAB group (http://matematicas.uclm.es/molab), with research focused on brain tumors, mainly glioblastoma, the most common and aggressive primary brain tumor. I have published articles based focused in the development of glioblastoma (and other types of Brian tumors) biomarkers using pretreatment magnetic resonance images. Also, I have developed models able to predict survival of glioblastoma patients, and so their response to different treatments. I have published 27 papers in ISI indexed journals, most of them in the first quartile of their respective áreas of knowledge. Also, I have contributed to more tan 20 scientific conferences and various research projects.

Additionally, I have completed more tan 50 ECTS credits of teaching, and I am conducting 2 PhD students, one in Applied Mathematics and the other in Didactics of Mathematics.

Part C. RELEVANT MERITS

C.1. Publications

J. Jiménez-Sánchez, A. Martínez-Rubio, A. Popov, J. Pérez-Beteta, Y. Azimzade, **D. Molina-García**, J. Belmonte-Beitia, G. F. Calvo, V. M. Pérez-García. *PLoS Computational Biology* 17(2) e1008266 (2021).

J. Jiménez-Sánchez, J. J. Bosque, G. A. Jiménez-Londoño, **D. Molina-García**, A. Martínez-Rubio, J. Pérez-Beteta, C. Ortega-Sabater, A. F. Honguero-Martínez, A. M. García-Vicente, G. F. Calvo, V. M. Pérez-García. Proceedings of the National Academy of Sciences (USA) 118(6) e2018110118 (2021).

V. M. Pérez-García, G. F. Calvo, J. J. Bosque, O. León-Triana, J. Jiménez, J. Pérez-Beteta,

J. Belmonte-Beitia, M. Valiente, L. Zhu, P. García-Gómez, P. Sánchez-Gómez, E. Hernández, R. Hortigüela, Y. Azimzade, **D. Molina-García**, A. Martínez, A. Acosta, A. Ortiz de Mendivil, F. Vallette, P. Schucht, M. Murek, M. Pérez-Cano, D. Albillo, A. F. Honguero, G. A. Jiménez, E. Arana, A. M. García-Vicente. Nature Physics 16, 1232-1237 (2020)

D. Molina-García, L. Vera-Ramírez, J. Pérez-Beteta, et al. *Prognostic models based on imaging findings in glioblastoma: Human versus Machine*. Scientific Reports 9:5982 (2019).

J.A. Aledo, J.A. Gámez, **D. Molina**. *Approaching the rank aggregation problem by local search-based metaheuristics*. Journal of Computational and Applied Mathematics 254:445-456 (2019).

J. Pérez-Beteta, **D. Molina**, A. Martínez-González, et al. *Morphological MRI-based features provide pretreatment and post-surgery survival prediction in glioblastoma.* European Radiology 29:1968-1977 (2019).

J. Pérez-Beteta, **D. Molina-García**, M. Villena, et al. *Morphologic Features on MR Imaging Classify Multifocal Glioblastomas in Different Prognostic Groups*. American Journal of Neuroradiology 40:634-40 (2019).

J. Pérez-Beteta, **D. Molina-García**, J.A. Ortiz, et al. *Tumor Surface Regularity at MR Imaging Predicts Survival and Response to Surgery in Patients with Glioblastoma*. Radiology 288(1), 218-225 (2018).

J.A. Aledo, J.A. Gámez, **D. Molina**. *Consensus-Based Journal Rankings: A Complementary Tool for Bibliometric Evaluation*. Journal of the association for information science and technology 69:936-948 (2018).

D. Molina, J. Pérez-Beteta, A. Martínez-González, et al. *Lack of robustness of textural measures obtained from 3D brain tumor MRIs impose a need for standardization.* PLoS One 12(6) e0178843 (2017).

A.M. Garcia-Vicente, J. Pérez-Beteta, V.M. Pérez-García, **D. Molina**, et al. *Metabolic Tumor Burden Assessed by Dual Time Point [18F]FDG PET/CT in Locally Advanced Breast Cancer: Relation with Tumor Biology*. Molecular Imaging and Biology 19:636-644 (2017).

J.A. Aledo, J.A. Gámez, **D. Molina**. *Tackling the supervised label ranking problem by bagging weak learners*. Information Fusion 35:38-50 (2017).

J. Pérez-Beteta, A. Martínez, **D. Molina.** *Glioblastoma: Does the pre-treatment geometry matter? A postcontrast T1 MRI-based study.* European Radiology 27(3):1096-1104 (2017)

D. Molina, J. Pérez-Beteta, A. Martínez-González, et al. *Geometrical measures obtained from pretreatment postcontrast T1 weighted MRIs predicts survival benefits from bevacizumab in glioblastoma patients*. Plos One 11(8):e0161484 (2016).

D. Molina, J. Pérez-Beteta, A. Martínez-González, et al. *Influence of grey level and space discretization on brain tumor heterogeneity measures obtained from MRIs*. Computers in Biology and Medicine 78:49-57 (2016).

D. Molina, J. Pérez-Beteta, B. Luque, et al. *Tumor heterogeneity in glioblastoma assessed by MRI texture analysis: a potential marker of survival*. British Journal of Radiology 1-9 (2016).

J.A. Aledo, J.A. Gámez, **D. Molina**. *Using extension sets to aggregate partial rankings in a flexible setting*. Applied mathematics and computation 290:208-223 (2016).

J.A. Aledo, J.A. Gámez, **D. Molina**. *Using metaheuristic algorithms for parameter estimation in generalized Mallows models*. Applied soft computing 38:308-320 (2016).

J.A. Aledo, J.A. Gámez, **D. Molina**. *Tackling the rank aggregation problem with evolutionary algorithms*. Applied mathematics and computation 222:632-644 (2016).

V.M. Pérez-García, G.F. Calvo, J.J. Bosque, O. León-Triana, J. Jiménez, J. Pérez-Beteta, J. Belmonte-Beitia, M. Valiente, L. Zhu, P. García-Gómez, P. Sánchez-Gómez, E. Hernández-San Miguel, R. Hortigüela, Y. Azimzade, **D. Molina-García**, et al. *Universal scaling laws rule explosive growth in human cancers*. Nature Physics. (Third revision, submitted).

C.2. Research projects and grants.
Modelos gráficos probabilísticos para analítica escalable de datos. Ministerio de Economía y Competitividad (Spain). 2014-2016. (50.850 €). PI: José Miguel Puerta Callejón.

Tumor heterogeneity in glioblastoma: an integrative approach. Fundación James S. Mc. Donnell (USA). 2015-2016. (49000 $). PI: Víctor M. Pérez.García.

Therapy Optimization in Glioblastoma: An integrated human data-based approach using mathematical models (Stage 2). Fundación James S. Mc. Donnell (USA). 2018-2021. (336000 $). PI: Víctor M. Pérez.García.

Oncología Matemática: Modelado, análisis y aplicaciones (MTM2015-71200R). Ministerio de Economía y Competitividad/FEDER (Spain) 2016-2019. (84800 €). PI: Víctor M. Pérez.García.

Modelos matemáticos de crecimiento tumoral y respuesta a las terapias: Aplicaciones a tumores cerebrales y otros problemas oncológicos. Junta de Comunidades de Castilla-La Mancha (Spain) 2018-2021. (123909 €). PI: Víctor M. Pérez.García.

Therapy optimization in glioblastoma: An integrative human data-based approach using mathematical models. Fundación James S. Mc. Donnell (USA) 2016-2018. (313000 $). PI: Víctor M. Pérez.García.

C.3. Contributions to scientific conferences.
Computing the consensus permutation in Mallows distribution by using genetic algorithms. **D. Molina.** International Conference on Industrial, Engineering, Other Applications of Applied Intelligent Systems 2013. Junio 17-21, 2013, Amsterdam (Netherlands).

Borda-type algorithms to aggregate partial rankings. **D. Molina**. Computational and Mathematical methods in Science and Engineering 2014. 2014, Rota (Spain).

Novel imaging biomarkers for glioblastoma predict survival and response to antiangiogenic therapies and allow for patient selection for surgery. **D. Molina**. 6th International Conference on Computational Surgery and Dual Training. 2016, Bordeaux (France).

Brain tumors: textural heterogeneity as predictor of survival in glioblastoma. **D. Molina**. Nolineal 2016. Junio 6, 2016, Sevilla (Spain).

FSS-OBOP: Feature subset selection guided by a bucket order consensus ranking. **D. Molina**. IEEE Symposium Series on Computational Intelligence 2016. Diciembre 6, 2016, Athens (Greece).

Novel geometrical imaging biomarkers predict survival and allow for patient selection for surgery in glioblastoma patients. **D. Molina**. Quadrennial Meeting of the World Federation of Neuro-Oncology Societies. 2017, Zürich (Switzerland).

Towards individualized survival prediction in glioblastoma patients using machine learning methods. **D. Molina** et al. Quadrennial Meeting of the World Federation of Neuro-Oncology Societies. 2017, Zürich (Switzerland).

Boosting label ranking classifiers. **D. Molina**. Congreso de Ecuaciones Diferenciales Y Aplicaciones. 2017, Cartagena (Spain).

Measuring tumor complexity on magnetic resonance images: A robustness analysis points out the need for standardization. **D. Molina**. 15th Experimental Chaos and Complexity Conference. 2018, Madrid (Spain).

Prognostic models based on imaging findings in glioblastoma: Human versus Machine. **D. Molina.** XIII Imaging of diagnostic and therapeutic biomarkers in Oncology workshop. 2019, Le Bono (France).

C4. Invited talks:
Oncología Matemática: ¿Pueden las matemáticas ayudar a los enfermos de cáncer? **D. Molina**, J. Pérez-Beteta, V.M. Pérez-García. Seminario de Análisis y Aplicaciones. Universidad Autónoma de Madrid. Madrid, marzo de 2016.

Radiología, matemáticas e inteligencia artificial ¿cuál es el futuro? ¿Cómo lo ve el matemático? **D. Molina-García**. V Congreso de Radiología para Estudiantes de Medicina. Murcia, febrero de 2020.

C.5. Participation in evaluation tasks.
Referee for 4 indexed scientific journals: Applied Soft Computing, PLOS ONE, Scientific reports y European Radiology.

D. Teaching

Academic course (UCLM)	Degree in (course)	Subject	ECTS credits
2019/2020 (Ciudad Real)	Grado en Maestro de Educación Primaria (1º)	Didáctica de los Números y la Estocástica	18
2018/2019 (Ciudad Real)	Grado en Maestro de Educación Primaria (1º)	Didáctica de los Números y la Estocástica	9
2017/2018 (Ciudad Real)	Grado en Ingeniería Eléctrica (4º)	Software Matemático para Ingeniería Eléctrica	2
2016/2017 (Ciudad Real)	Grado en Ingeniería Eléctrica (4º)	Software Matemático para Ingeniería Eléctrica	2
2016/2017 (Ciudad Real)	Universitario en Profesor de Educación Secundaria	Diseño curricular I	6
2014/2015 (Ciudad Real)	Grado en Maestro de Educación Primaria (2º)	Didáctica de la Geometría y la Medida	3
2014/2015 (Cuenca)	Grado en Maestro de Educación Primaria (1º)	Didáctica de los Números y la Estocástica	2.5
2012/2013 (Albacete)	Grado en Ingeniería Informática	Sistemas Inteligentes	9