Date of the CVA	05/11/2021

Section A. PERSONAL DATA

Name and Surname	MANUEL GONZÁLEZ HIDALGO		
DNI	22691267L	Age	57
Researcher's identification number	Researcher ID	F-3152-2016	
	Scopus Author ID	24512202100	
	ORCID	0000-0003-4984-387X	

* Obligatorio

A.1. Current professional situation

Institution	Universidad de las Islas Baleares		
Dpt. / Centre	Higher Polytechnic School / Department of Mathematical and Information Sciences		
Address	Cra. de Valldemossa, Km. 7.5, 07122, Palma		
Phone	971172902 -	Email	manuel.gonzalez@uib.es
Professional category	Senior university lecturer	Start date	1999
Keywords			

A.2. Academic education (Degrees, institutions, dates)

Bachelor/Master/PhD	University	Year
Informàtica	Universidad de las Islas Baleares	1995
Matemáticas	Universitat de València	1988

A.3. General quality indicators of scientific production

1. Number of six-year research periods: 4 (the last corresponding to 2015-2020).
2. Co-supervised doctoral theses: 4 (2 more in progress)
3. Total citations: 1212 (563 from 2016, according to Google Scholar)
4. Average number of citations/year in the last 5 years: 112,6
5. Index h: 17 Index i10: 30
6. Co-author of 38 articles in journals (17 in 2015-2021), 29 of them indexed in JCR (23 Q1, 3 Q2, 2 Q3, 1 Q1).
7. Co-author of more than 57 papers in international conferences, 18 in national conferences (31 in 2015-2021, many with quality indicators GGS Class, CORE, MA, LiveSHINE, SJR), 8 book chapters (by invitation) and Co-editor of 4 international books.
8. Member of the organizing committee of 22 congresses (4 national). Member of the program committee of 60 congresses / conferences / workshops (5 of them national). Program Chair of CIARP 2021.
9. Editor of 'Journal of Intelligence & Fuzzy Systems', JCR Q3. Member of the Editorial Board of 'Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization', SJR Q3. Principal investigator 2 of the TIN2016-75404-P, PI of the industrial doctorate contract Ref. 3114 (PhD Collaboration Agreement Between AnsuR and the UIB) between AnsuR Technologies AS and the UIB, funded by the Council of Norway.

Section B. SUMMARY OF THE CURRICULUM

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Since I joined the UIB, in 1988, my research activity has focused on computer graphics, in analysis and processing of images: analysis and segmentation of images, modeling and animation of deformable objects, analysis and synthesis of human movement, medical imaging and 3D modeling, the study of aggregation operators and their applications to image processing, focusing on the fuzzy mathematical morphology, and recently soft computing techniques and their applications to image processing. I am the Principal Investigator of the research group Soft Computing, Image Processing and Aggregation (SCOPIA). Member of the

research team of 17 national research projects (TIC, TIN, MTM, ISCIII), two national thematic networks, 4 projects financed by the U.E .; 6 AECID projects, 2 regional projects and 4 OCDS-CUD (University Cooperation for Development CAIB-UIB) projects. Principal investigator of 6 national special research actions (3 TIC and 3 TIN) and 4 regional ones.

It is in these lines of research that the publications mentioned in section A.3 must be considered included. Director/Co-director of 16 advanced works (TFG, TFM), 1 Master's thesis at the Univ. De Oriente (Cuba), 3 PhD theses (two more are in process) and a DEA thesis. Communications reviewer in 8 conferences. Member of the AGAUR committee of evaluators, and regular reviewer of JCR journals: IEEE Transactions on Medical Imaging, Information Sciences, Neural Computing and Applications, Pattern Recognition, Computer Methods and Programs in Biomedicine, IEEE Access, SYMMETRY-BASEL, Journal of Intelligent & Fuzzy Systems,...

It should be noted that we are pioneers of fuzzy mathematical morphology (FMB) based on discrete operators, a paradigm with competitive results in various applications. Also highlight all the applications to the analysis of images developed using the FMB from t-norms and uninorms. Within the framework of AECID actions, I have participed in the design of a quick algorithm to detect the number of elliptical erythrocytes in peripheral blood samples, which has been implemented in Cuba to aid in the diagnosis and treatment of sicklemia. The erythrocytesIDB database (http://erythrocytesidb.uib.es) has been transferred and published. Participation in the creation of the web http://dermaweb.uib.es/ where the results, tools and programs created by SCOPIA are made available to the scientific community. Participation in the creation of a web tool for the cooperation of Internet users in the diagnosis of sickle cell anemia People4sicklemia (http://humania.uib.es/countCells/). Finally, note the participation in the development and creation, in collaboration with HUSE-IdISBA, of the RedScar smartphone APP to help detect infected wounds, which is currently in the process of registration and a 'clinical study' to validate it.

Continuing with these research lines, we are currently working on the creation of explainable artificial intelligence tools for the analysis of biomedical images and to aid in medical diagnosis. In particular of dermal lesions, in the analysis of interstitial diseases, and in the improvement of the infections APP.

Section C. MOST RELEVANT MERITS (ordered by typology)

C.1. Publications

AC: Autor de correspondencia; (nº x / nº y): posición firma solicitante / total autores

1 **Scientific paper**. González-Hidalgo, M.; Massanet, S.; Mir, A.; Ruiz-Aguilera, D.(0/4). 2021. Impulsive Noise removal with an adaptive weighted arithmetic mean operator for any noise density 918066 - Applied Sciences-Basel. 11-2, pp.560. ISSN 2076-3417.

2 **Scientific paper**. Lidia Talavera Martínez; Pedro Bibiloni; Manuel González-Hidalgo. (0/). 2021. Hair Segmentation and Removal in Dermoscopic Images using Deep Learning 918367 - Ieee Access. 9, pp.2694-2704. ISSN 2169-3536.

3 **Scientific paper**. Delgado-Font, Wilkie; Escobedo-Nicot, Miriela; González-Hidalgo, Manuel; Herold-Garcia, Silena; Jaume-i-Capó; Antoni; Mir, Arnau. (0/6). 2020. Diagnosis support of sickle cell anemia by classifying red blood cell shape in peripheral blood images 901254 - Medical & Biological Engineering & Computing. pp.1-20. ISSN 0140-0118.

4 **Scientific paper**. Nata¿a Petrović; Gabriel Moyà-Alcover; Antoni Jaume-i-Capó; Manuel González-Hidalgo. (4/4). 2020. Sickle-cell disease diagnosis support selecting the most appropriate machinelearning method: Towards a general and interpretable approach for cellmorphology analysis from microscopy images 900893 - Computers in Biology and Medicine. 126, pp.04027. ISSN 0010-4825.

5 **Scientific paper**. Bibiloni, P.; González-Hidalgo, M.; Massanet, S.(0/3). 2019. Soft Color morphology: A fuzzy approach for multivariate images 910026 - Journal of Mathematical Imaging and Vision. 61-3, pp.394-410. ISSN 0924-9907.

6 **Scientific paper**. Bibiloni, P.; González-Hidalgo, M.; Massanet, S.(0/3). 2019. A real-time fuzzy morphological algorithm for retinal vessel segmentation 916038 - Journal Of Real-Time Image Processing. 16-6, pp.2337-2350. ISSN 1861-8200.

7 **Scientific paper**. Lidia Talavera-Martínez; Pedro Bibiloni; Manuel González-Hidalgo.(3/3). 2019. Computational Texture Features of Dermoscopic Images and Their Link to the Descriptive Terminology: A Survey 900882 - Computer Methods and Programs in Biomedicine. 182. ISSN 0169-2607.

8 **Scientific paper**. González-Hidalgo, M.; Massanet, S.; Mir, A.; Ruiz-Aguilera, D. (0/4). 2018. Improving Salt and pepper noise removal using a fuzzy mathematical morphology-based filter 913332 - Applied Soft Computing. 63, pp.167-180. ISSN 1568-4946.

9 **Scientific paper**. Laura Lopez-Fuentes; Joost van de Weijer; Manuel González-Hidalgo; Harald Skinnemoen; Andrew D. Bagdanov. (0/5). 2018. Review on computer vision techniques in emergency situations 910122 - Multimedia Tools and Applications. 77, pp.17069-17107. ISSN 1380-7501.

10 **Scientific paper**. González-Hidalgo, M.; Massanet, S.; Mir, A.; Ruiz-Aguilera, D. (0/4). 2016. A fuzzy morphological hit-or-miss transform for grey-level images: a new approach 900897 - Fuzzy Sets and Systems. 286, pp.30-65. ISSN 0165-0114.

11 **Scientific paper**. González-Hidalgo, M.; Massanet, S.; Mir-Torres, A.; Ruiz- Aguilera, D.(0/4). 2015. On the Choice of the Pair Conjunction-Implication into the Fuzzy Morphological Edge Detector 909253 - IEEE Transactions on Fuzzy Systems. 23-4, pp.872-884. ISSN 1063-6706.

12 **Scientific paper**. González-Hidalgo, M.; Guerrero-Peña, F.A.; Herold-García, S.; Jaume-i-Capo, A.(0/). 2015. Red Blood Cell Cluster Separation From Digital Images for Use in Sickle Cell Disease 917795 - Ieee Journal Of Biomedical And Health Informatics. 19-4, pp.1514-1525. ISSN 2168-2194.

C.2. Participation in R&D and Innovation projects

1 PID2020-113870GB-I00, Desarrollo de herramientas de Soft Computing para la Ayuda al Diagnóstico Clínico y a la Gestión de Emergencias (HESOCODICE) MINISTERI DE CIÈNCIA I INNOVACIO. Manuel González Hidalgo; Sebastián Massanet Massanet. (Universidad de las Islas Baleares). 01/09/2021-31/08/2025. 99.099 €.

2 TIN2016-75404-P, Técnicas de Soft Computing para el tratamiento de la incertidumbre en el procesamiento de imagenes Ministerio de Economía y Competitividad (MINECO). Sebastián Massanet Massanet; Manuel González Hidalgo. (Universidad de las Islas Baleares). 30/12/2016-29/06/2021. 125.235 €.

3 PROCOE/2/2017, Investigació i desenvolupament del processament automàtic d'imatges amb àrees patològiques afectades Conselleria d' innovació, recerca i turisme. Gabriel Moyà Alcover. (Universidad de las Islas Baleares). 22/12/2017-22/03/2021. 37.422 €.

4 TIN2016-81731-REDT, Lógica Difusa y Soft Computing (LODISCO-II) Secretaría de Estado de Investigación, Desarrollo e Innovación, Ministerio de Economía y Competitividad, Gobierno de España.. Humberto Bustice Sola. (Universidad de las Islas Baleares). 01/01/2017-31/12/2018. 15.000 €.

5 PI15/01653, Modelización cinética a través de Tomografía por emisión de Positrones (PET) con 18F-colina como biomarcador de neuroimagen para el diagnóstico y pronóstico en gliomas de alto grado Instituto de Salud Carlos III. Sebastià Rubí Sureda. (Universidad de las Islas Baleares). 01/01/2016-31/12/2018. 74.415 €.

6 TIN2014-56381-REDT, Lógica Difusa y Soft Computing (LODISCO) Secretaría de Estado de Investigación, Desarrollo e Innovación, Ministerio de Economía y Competitividad, Gobierno de España.. Humberto Bustice Sola. (Universidad de las Islas Baleares). 01/01/2015-30/11/2017. 11.700 €.

7 TIN2013-42795-P, Herramientas operacionales y métricas para el Tratamiento de Imágenes y la Fusión de Información. Acronimo: HOMTIFI Ministerio de Economía y Competitividad (MINECO). Joan Torrens Sastre; Daniel Ruiz Aguilera. (Universidad de las Islas Baleares). 01/01/2014-31/12/2016. 51.772,89 €.

8 MTM2009 10320, Funciones de agregación e implicaciones borrosas. Aplicaciones Ministerio de Ciencia e Innovación. Joan Torrens Sastre. (Universidad de las Islas Baleares). 01/01/2010-31/12/2013. 41.866 €.

9 A1/037910/11, FRIVIG: FORMACION DE RECURSOS HUMANOS E INVESTIGACION EN EL AREA DE VISION POR COMPUTADOR E INFORMATICA Agencia Española de Cooperación Internacional para el Desarrollo (AECID). Cristina Manresa Yee. (Universidad de las Islas Baleares). 13/12/2011-13/03/2013. 43.800 €.

10 A2/037538/11, Formación de recursos humanos para el desarrollo de actividades docentes, investigativas y laborales en aplicación de técnicas computacionales, especialmente la visión computacional, para la rehabilitación. Agencia Española de Cooperación Internacional para el Desarrollo (AECID). Antoni Jaume i Capó. (Universidad de las Islas Baleares). 13/12/2011-13/12/2012. 45.520 €.

11 A/023109/09, Aplicaciones basadas en visión para la rehabilitación Agencia Española de Cooperación Internacional para el Desarrollo (AECID). Antoni Jaume i Capó. (Universidad de las Islas Baleares). 17/01/2010-17/01/2011.

C.3. Participation in R&D and Innovation contracts

1 Phase I / IIA study for the evaluation of the APP REDSCAR © for the detection and monitoring of potentially infected surgical wounds Servei de Salut de les Illes Balears (Ib-Salut). Juan José Segura Sampedro. (HUSE, Hospital Universitari de Son Espases). 2019-02/01/2021. 5.000 €.

2 PhD Colllaboration Agreement between AnsuR and the University of the Balearic Islands AnsuR Technologies AS; The Research Council of Norway. Manuel González Hidalgo. (UIB i UAB). 08/09/2015-P4Y01D. 18.000 €.