MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

CURRICULUM VITAE (CVA)

CV date	08/12/2021

Part A. PERSONAL INFORMATION

First name	Aythami		
Family name	Morales Moreno		
Gender (*)	Male	Birth date	14/07/1981
DNI	78501136C		
e-mail	aythami.morales@uam.es	URL Web: www.aythami.me	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-7268-4785	

(*) Mandatory

A.1. Current position

Position	Associate Professor (CAM Lecturer Excellence Program)			
Initial date	11 October 2020			
Institution	Universidad Autónoma de Madrid			
Department/Center	TEC	Escuela Politécnica Superior		
Country	Spain		Teleph.	659860245
Key words	Artificial intelligence, machine learning, biometrics, fairness, privacy			

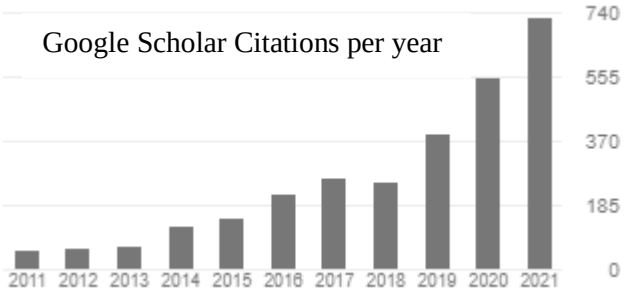
A.2. Previous positions (research activity interuptions, art. 14.2.b))

Period	Position/Institution/Country/Interruption cause
2007-2011	Contrato FPI MINECO, ULPGC
2011-2014	Contrato postdoctoral Competitivo, ULPGC
2014-2017	Contrato Juan de la Cierva, UAM
2014-2017	Contrato Juan de la Cierva Incorporación, UAM
2017-2020	Profesor Contratado Doctor Interino, UAM

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Electrical Engineering	Universidad de Las Palmas de Gran Canaria	2006
PhD Intelligent Systems	Universidad de Las Palmas de Gran Canaria	2011

Part B. CV SUMMARY



SCIENTIFIC CONTRIBUTIONS: **Aythami Morales** (AM), Msc (2006) and PhD (2011) is a **product of the Spanish I+D+I Programs** with a research career based on National competitive contracts: **FPI** (07-11), **ULPGC Postdoc** (12-14) , **JdC** (14-17), **JdC-I** (17), mobility between two universities and research stays in top international laboratories: Schepens Research Institute – **Harvard Medical School** (**USA, 2017; José Castillejo Fellowship**), Hong Kong Polytecnic University (**China, 2010 & 2012**), University of Bologna (**Italy, 2011**) and Michigan State University (**USA, 2010**). In 2014 he moved from ULPGC to UAM where he is currently **Associate Professor** since 2017 (**CAM Lecturer Excellence Program**). In his department he has opened his own research lines focused on the study of discrimination-aware AI and bot detection., among others. He is author of **38 articles published in JCR** journals, where **86% correspond to Q1 (83% in D1)** journals in the areas of **Artificial Intelligence, Computer Science, and Engineering**. These articles have been published in the most prestigious journals including **3 articles** in **IEEE Trans. on Pattern Analysis and Machine Intelligence** (**impact factor 16.39, 1/140 in COMPUTER SCIENCE, ARTIFICIAL**

INTELLIGENCE). He is author of **more than 70 conference papers** including the most prestigious venues in his area AAAI, ICPR, ICIP, CVPRw, ECCVw, ICB, IJCB,… His publications sum more than **3K citations** with **a h-index of 29** (see progression in the Google Scholar Citation History). **The internationalization is a key aspect in his career, and he has co-authored more than 30 papers with researchers from 23 different international institutions (including MIT and Harvard).** He is an **active member of the scientific community** serving as **Program Co-Chair** (IbPRIA19, ICCST17), **Publication Chair** (CIARP18), member of Organization Committees (URSI16, JVHC13,NOLISP11, FWTMIP10), **Area Chair** (ICB18), **Session Chair** (BTAS16, ICCST13) and continuous participation in the technical committees of key conferences in his area since 2009 (ICB,BTAS,IJCB,…). This career has been recognized with **several academic awards**: 2011 - Premio Extraordinario de Tesis Doctoral; 2012- Premio ISDEFE a la mejor Tesis Doctoral COIT; 2014 - Best Student Paper Award ICFHR-2014; 2015 - Outstanding Reviewer Award from BTAS2015; 2017 – IAPR Best Student Paper Award from ICPRS; 2018 - Best presentation award from ICMLT; 2019 - CVPR BEFA Best Runner Paper from CVPR Workshop on Face Bias Analysis.

CONTRIBUTIONS TO THE SOCIETY: He has been **Principal Investigator of 2 National projects and 1 H2020 project: 2020-2023:** TRESPASS **(**TRaining in Secure and PrivAcy-preserving biometricS**)** is an Innovative Training Network (ITN) funded by the EU through the Horizon 2020 Framework. **2019-2021: RTI2018-101248-B-I00**, "BIBECA: Biometrics and Behavior for Context-Aware and Secure Human-Computer Interaction". **2017: Neurometrics** (UAM-Santander Program); He has participated in 8 National Research Projects, 2 FP7 European Projects, and 2 H2020 projects. He has participated in several technology transfer contracts with the industry including **three contracts as PI with Accenture, nQ Medical, and VINCES Consulting**. All these projects were focused on Artificial Intelligence, Machine Learning, Privacy, and Biometric Recognition technologies He is author of **two patents** related with fingerprint recognition and ethics in AI. This career has been recognized with **industrial awards**: 2012 –Tecnova award by SPEGC. 2013 – Best Security Project in Spain from Security Forum 2013. He participates in outreach activities to society including "**Meet the Fellows 2016**" as part of European Comission Marie Sklodowska actions; **La Noche Europea de los Investigadores 2019** as part of the Marie Sklodowska-Curie Horizonte 2020 actions; Tecnológica SC 21, invited article in El País (the most read newspaper in Spanish online): Ronaldo, Messi y los algoritmos adversarios.

MENTORSHIP ACTIVITIES: he is **Coordinator of the Master's Degree in Bioinformatics and Computational Biology**. He was **co-director of three PhD Thesis (2016, 2019, 2021)** and he is co-director of five ongoing PhD thesis. His PhD students are now Associate Professor (ULPGC) and senior researcher in a technological SME company in Boston (nQ Medical). The third one was Associate Professor (ESPE) until he sadly passed away in 2021. He is very active as Supervisor of Bachelor and Master students, which resulted in the supervision of more than 20 PFCs/TFGs/TFMs (continuous supervision of at least 2 students per year). He was **external evaluator for the European Commission** in the prestigious programme **ERC COG 2016** (Consolidator Grant). He was **Guest Editor** for PLoS One and Elsevier Pattern Recognition Letters. He is member of the **Technical committee** of the most important conferences in his area: ICB, IGCB, BTAS, IFG, ICPR, WACV.

Part C. RELEVANT MERITS *(sorted by typology)*
C.1. Publications *(selection, only last 5 years, **all Q1 JCR journals** except [2], see note)*

[1] **A. Morales**, J. Fierrez, A. Acien, R. Tolosana, I. Serna, "SetMargin Loss applied to Deep Keystroke Biometrics with Circle Packing Interpretation," *Pattern Recognition*, vol. 122, 2022.

[2] P. Terhörst, J. N. Kolf, M. Huber, F. Kirchbuchner, N. Damer, **A. Morales**, J. Fierrez, A. Kuijper, "A Comprehensive Study on Face Recognition Biases Beyond Demographics," *IEEE Transactions on Technology and Society*, in Press, 2021. *Note: new journal, waiting for inclusion in JCR.*

[3] **A. Morales**, J. Fierrez, R. Vera-Rodriguez, R. Tolosana, "SensitiveNets: Learning Agnostic Representations with Application to Face Images," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 43 (6), pp. 2158-2164, 2021.

[4] A. Acien, **A. Morales**, J. Fierrez, R. Vera-Rodriguez, O. Delgado-Mohatar, "BeCAPTCHA: Behavioral Bot Detection using Touchscreen and Mobile Sensors benchmarked on HuMIdb**,**" *Engineering Applications of Artificial Intelligence*, vol. 98, 104058, 2021.

[5] R. Tolosana, J. Fierrez, **A. Morales** and J. Ortega-Garcia, "DeepFakes and Beyond: A Survey of Face Manipulation and Fake Detection", *Information Fusion*, vol. 64, pp.131-148, 2020.

[6] J. Fierrez, **A. Morales**, R. Vera-Rodriguez and D. Camacho, "Multiple Classifiers in Biometrics. Part 1: Fundamentals and Review", *Information Fusion*, vol. 44, pp. 57-64, 2018.

[7] J. Fierrez, A. Pozo, M. Martinez-Diaz, J. Galbally and **A. Morales**, "Benchmarking Touchscreen Biometrics for Mobile Authentication", *IEEE Trans. on Information, Forensics and Security*, vol. 13, n. 11, pp. 2720-2733, 2018.

[8] J. Fierrez, **A. Morales**, R. Vera-Rodriguez and D. Camacho, "Multiple Classifiers in Biometrics. Part 2: Trends and Challenges", Information Fusion, vol. 44, pp. 103-112, 2018.

[9] M. A. Ferrer, M. Diaz-Cabrera, C. Carmona-Duarte, **A. Morales**, "A Behavioral Handwriting Model for Static and Dynamic Signature Synthesis". *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 39, no. 6, pp. 1041-1053, 2017.

[10] **A. Morales**, J. Fierrez, R. Tolosana, J. Ortega-Garcia, J. Galbally, M. Gomez-Barrero, A. Anjos and S. Marcel, "Keystroke Biometrics Ongoing Competition", *IEEE Access*, vol. 4, pp. 7736-7746, 2016.

C.2. Congress (selected, only last 2 years)

[1] R. Tolosana, P. Delgado-Santos, A. Perez-Uribe, R. Vera-Rodriguez, J. Fierrez, A. Morales, "DeepWriteSYN: On-Line Handwriting Synthesis via Deep Short-Term Representations," *AAAI Conference on Artificial Intelligence*, 2021.

[2] J. Hernandez, R. Tolosana, J. Fierrez, A. Morales, "DeepFakesON-Phys: DeepFakes Detection based on Heart Rate Estimation," *AAAI Workshop on Artificial Intelligence Safety)*, 2021.

[3] I. Serna, A. Morales, J. Fierrez, M. Cebrian, N. Obradovich and I. Rahwan, "Algorithmic Discrimination: Formulation and Exploration in Deep Learning-based Face Biometrics ", in *AAAI Workshop on Artificial Intelligence Safety*, New York, NY, USA, February 2020.

[4] A. Ortega, J. Fierrez, T. Ribeiro, Aythami Morales, Z. Wang, "Symbolic AI for XAI: Evaluating LFIT Inductive Programming for Fair and Explainable Automatic Recruitment", *IEEE/CVF WACV21 Workshop on Explainable & Interpretable Artificial Intelligence for Biometrics (xAI4Biom)*, 2021.

[5] A. Peña, J. Fierrez, A. Lapedriza, A. Morales, "Learning Emotional Blinded Face Representations", *IAPR Intl. Conf. on Pattern Recognition (ICPR)*, 2021.

[6] I. Serna, A Peña, A. Morales, J. Fierrez, "InsideBias: Measuring Bias in Deep Networks and Application to Face Gender Biometrics," *IAPR Intl. Conf. on Pattern Recognition, 2021*.

[7] A. Acien, J.V. Monaco, A. Morales, R. Vera-Rodriguez, J. Fierrez, "TypeNet: Scaling up Keystroke Biometrics," *IAPR/IEEE International Joint Conference on Biometrics (IJCB)*, 2020.

[8] O. Delgado-Mohatar, R. Tolosana, J. Fierrez, A. Morales, "Blockchain in the Internet of Things: Architectures and Implementation," *Proc. of IEEE Conf. on Computers, Software, and Applications (COMPSAC)*, Madrid, Spain, 2020.

[9] A. Peña, I. Serna, A. Morales, J. Fierrez, "Bias in Multimodal AI: Testbed for Fair Automatic Recruitment," *Proc. of IEEE CVPR Workshop on Fair, Data Efficient and Trusted Computer Vision*, Washington, Seattle, USA, 2020.

[10] A. Morales, A. Acien, J. Fierrez, J.V. Monaco, R. Tolosana, R. Vera-Rodriguez, Javier Ortega-Garcia, "Keystroke Biometrics in Response to Fake News Propagation in a Global Pandemic," *Proc. of IEEE International Workshop on Secure Digital Identity Management (SDIM)*, 2020.

C.3. Research projects

- Title: IDEA-FAST – Identifying Digital Endpoints to Assess Fatigue, Sleep and Activities Daily Living in Neurodegenerative Disorders and Immune-mediated Inflammatory Diseases
  Type: H2020-JTI-IMI2-2018-15-two-stage-853981; Duration: November 2019 – April 2025. PI: Julián Fiérrez; Financiación UAM: ca. 230.000 € (40M € in Total)
- Title: TRESPASS-ETN – Training in Secure and Privacy-preserving Biometrics
  Type: H2020-MSCA-ITN-2019-860813; Duration: Jan. 2020 – Dec. 2023. PI: Julián Fiérrez y **Aythami Morales**; Financiación UAM: ca. 502.000 €
- Title: PRIMA – Privacy Matters
  Type: H2020-MSCA-ITN-2019-860315; Duration: Jan. 2020 – Dec. 2023. PI: Julián Fiérrez y Rubén Vera; Financiación UAM: ca. 485.000 €

- Title: BIBECA: Biometrics and Behavior for Context-Aware and Secure Human-Computer Interaction Type: Plan Nacional de I+D+i; RTI2018-101248-B-I00R; Duration: Jan. 2019 – Dec. 2021. **PI: Aythami Morales** and Julián Fierrez; Founding: ca. 240.000 €
- Title: NEUROMETRICS: Characterizing Neurodegenerative Disorders According to New Biomarkers, Type: Plan Nacional de I+D+i; TEC2015-70627-R; Duration: Jan. 2016 – Dec. 2018, **PI: Aythami Morales**; Founding UAM: ca. 12.000 €
- Title: COGNIMETRICS - Cognitive Biometric Authentication: HCI for Identification, Type: Plan Nacional de I+D+i; TEC2015-70627-R; Duration: Jan. 2016 – Dec. 2018, PI: Julián Fiérrez and Javier Ortega; Founding UAM: ca. 280.000 €**.**
- Title: BEAT – Biometrics Evaluation and Testing, Type: STREP, FP7-SEC-2011.5.1-1-284989; Duration: Mar. 2012 – Feb. 2016, PI: Julián Fiérrez, Founding UAM: 530.400 €
- Title: TABULA RASA – Trusted Biometrics under Spoofing Attacks, Type: STREP, FP7-ICT-257289; Duration: Nov. 2010 – Mar. 2014, PI: Julián Fiérrez; Founding UAM: 368.560 €

C.4.1. Contracts, technological or transfer merits

- Title: VINCESAI: ARGOS. IPs: **Aythami Morales.** Entity: Vnces Consulting. Duration: Oct. 2021 – Sep. 2022; Founding: **30.000 €**
- Title: Data4Real – Aprendizaje automático para entornos reales. IPs: **Aythami Morales.** Entity: Accenture. Duration: Jan. 2017 – Dec. 2020; Founding: **24.000 €**
- Title: Keystroke Biometrics for Parkinson Disease Characterization. IP: **Aythami Morales** and Ruben Vera-Rodriguez. Entity: nQ Medical. Duration: Jan. 2021 – Jul. 2021; Founding: **6.500 €**
- Title: Bio-Guard: Mobile User Monitoring from Heterogeneous Biometric Data. IP: Javier Ortega Garcia. Entity: Fundación BBVA. Duration: September 2018 – August 2020; Founding: **100.000 €**
- Title: e-BioFirma: Mejora de Algoritmos de Comparación de Firmas. IPs: Julián Fiérrez/Javier Ortega García. Entity: Cecabank. Duration: Apr. 2014–Mar. 2019; Founding: **+300.000 €**

C4.2. Patents

- BeCAPTCHA: Método para generar datos de entrenamiento de un módulo detector de bots, módulo detector de bots entrenado a partir de los datos de 5 entrenamiento generados mediante el método y sistema de detección de bots Presentada el 28 de Ene. de 2020. Autores: Aythami Morales, Julian Fierrez, Javier Ortega-García, Ruben Tolosana, Iván Bartolomé. Número y entidad emisora de la patente, P202030066
- Deformable Minuatiae Clustering for Fingerprint Recognition. Sistema y método para la comparación de huellas dactilares y palmares basada en múltiples clústeres deformables de minucias coincidentes. Autores: Miguel A. Medina-Perez, Aythami Morales, Miguel A. Ferrer, Milton García-Borroto, Octavio Loyola-González, Leopoldo Altamirano-Robles. Referencia: MX/a/2015/002939. País de Prioridad: México (patent extetended to Mexico).

Awards: 2011 - Premio Extraordinario de Tesis Doctoral. 2011 - Premio a la mejor por La Caja de Canarias. 2012- Premio ISDEFE a la mejor Tesis Doctoral por el COIT. 2014 - Best Student Paper Award by IAPR ICFHR-2014. 2015 - Outstanding Reviewer Award by IEEE BTAS2015. 2017 – IAPR Best Student Paper Award ICPRS. 2018 - ICMLT best presentation award. 2019 - CVPR BEFA Best Runner Paper. 2012 –Tecnova award to the Best Technological Bussiness Plan. 2013 – Award to the best Security Project in Spain by Security Forum.

Member of the Organizing Committee: Program Co-Chair (IbPRIA19, ICMLT18, ICCST17), **Publication Chair** (CIARP18), member of **Organization Committees** (URSI16, JVHC13,NOLISP11, FWTMIP10), **Area Chair** (ICB18), **Session Chair** (ICMLT17, BTAS16, ICCST13) and continuous participation in the technical committees of important conferences since 2009 (ICB,BTAS,IJCB, ISBA…).

Research stays: 2010 - Center: Michigan State University, **USA,** Professor: Prof. Anil K Jain (Fellow IEEE – Fellow IAPR), Type: predoc; Duration (**weeks): 10. 2010 and 2012 -** Center: Hong Kong Polytechnic University, **China.** Professor: Ajay Kumar. Type: predoc+postdoc; Duration (**weeks): 12** (predoc) +**16** (postdoc). **2011 -** Center: University Bologna, **Italy.** Professor: Prof. Davide Maltoni (Fellow IEEE – Fellow IAPR). Type: predoc; Duration (**weeks): 16. 2017 -** Center: Schepens Research Institute – Harvard Medical School Affiliate, **USA.** Professor: Prof. Russell L. Woods. Type: postdoc; Duration (**weeks): 16.**