CV Date	07/09/2023

Part A. PERSONAL INFORMATION

First name	José Luis		
Family name	Ayala Rodrigo		
Gender	Male	Birth date	06/03/1978
ID number			
e-mail	jayala@ucm.es	https://scholar.google.com/citations?hl=es&user=X1JOheMAAAAJ	
Open Researcher and Contributor ID (ORCID) (*)		0000-0001-7236-5330	

A.1. Current position

Position	Full professor		
Initial date	07/01/2022		
Institution	Complutense University of Madrid		
Department/Center	Department of Computer Architecture and Automation		
Country	Spain	Teleph. no.	913947601
Key words	Bioengineering, modeling, neurocomputing, machine-learning		

A.2. Previous positions (research activity interuptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2019-2022	Associate professor (civil servant)/UCM/Spain/promotion
2009/2019	Associate professor/UCM/Spain/promotion
2005-2009	Visiting professor/EPFL/Switzerland/moving to Spain
2004-2005	Assistant professor/UPM/Spain/moving to Switzerland

A.3. Education

Degrees	University	Year
PhD Telecom. engineering (EE&CE)	Technical University of Madrid	2005
BSc Psychology	UNED	2009
MSc Applied Physics	UAM	2002
MSc Telecom. engineering (EE&CE)	Technical University of Madrid	2001

Part B. CV SUMMARY

Six-year research terms: 3 (last one obtained in 2022)
Six-year technology transfer terms: 1 (last one obtained in 2018)

Conducted PhD Thesis: 11 defended, 7 on-going
Citations: 2548 Average citations/year (2017-2022): 205
h-Index: 27 Data source: Google Scholar

Multidisciplinary education: PhD in telecommunications engineering (computer and electrical engineering), degree in physics and psychology. Recipient of a scholarship for academic achievement during the training period, as well as a prize for the best doctoral thesis from the College of Telecommunications Engineers. Beneficiary of multiple doctoral scholarships (UPM pre-doctoral scholarship, FPI of the MCyT) and post-doctoral scholarships (Juan de la Cierva), as well as mobility scholarships (José Castillejo, SIGDA PhD Forum) during the period 2005 - 2009. Multiple research stays in international centers (totalling over 36 months): University of California Irvine, Università di Bologna, EPFL Switzerland, UCLA.

Winner of three "best paper awards": IEEE WASP 2003, VLSI-SoC 2009, EUC 2014 SIGDA PhD Forum Award at DAC.

Scientific Advisor of the Research Office of the Spanish Society of Neurology. European representative in the IEEE IoT, IEEE Smart Cities, IEEE Brain initiatives.

Organizer of several international events such as General Chair and Program Chair: IEEE MCSoC 2015, IEEE GLSVLSI 2013, PATMOS 2012, PATMOS 2011, VLSI-SoC 2010. Member of the executive committee of IEEE DATE, IEEE ICCAD and IEEE DAC. Member of the editorial committee of IET Circuits, Devices and Systems; IEEE Embedded System Letters. Member of the IEEE Council on Electronic Design Automation Publications Committee. Guest editor for several special issues of Integration, the VLSI Journal, as well as ACM TODAES. Vice President of Publicity of the IEEE CEDA in 2015-2017, Vice President of New Initiatives of the IEEE CEDA in 2018-2020.

Participation in more than 10 competitive research projects Principal researcher in three nationally funded projects (MINECO, Banco Santander and Fundación Iberdrola) and 5 privately funded projects (LOU 83). Participation in 4 educational innovation projects (2 as leader). Erasmus coordinator for the Bologna and Lausanne destinations. Coordinator of the ATHENS programme for the international teaching of the VLSI design discipline. Coordinator of the 2nd year of the degree in electronic communications engineering. Member of the panel of evaluators of MINECO of the national research plan in the area of Electronic Technology - Microelectronics (2014-2015, 2017-2018). Member of the panel of evaluators of the German Research Agency in the area of Embedded Systems (2012-2014).

Advisor to the Vice-rectorate of Technology and Sustainability of the Complutense University of Madrid since January 2020.

CEO and founder of the company BrainGuard S.L, a spin-off from UCM that brings ICTs to the neurological field by the development of new technologies to improve the quality of life of migraine patients. Awarded by Madri+d, OTRI UCM, Santander-Explorer program, Sanitas, etc. for the disruptive merit of the company.

Recipient and coordinator of several private/public-funded projects with national/international hospitals focused on the application of machine-learning, IoT, and modeling techniques in the clinical field. Participant of several clinical trials (neurology, oncology, cardiovascular medicine, gynecology) aiming to provide data processing techniques to improve the clinical practice.

Part C. RELEVANT MERITS

C.1. Most important publications in national or international peer-reviewed journals, books and conferences

[1]J. C. Salinas-Hilburg, M. Zapater, J. M. Moya, and J. L. Ayala, “Fast energy estimation framework for long-running applications,” Future Generation Computer Systems, vol. 115, pp. 20–33, 2021.
[2]V. Pytel et al., “Personalized repetitive transcranial magnetic stimulation for primary progressive aphasia,” Journal of Alzheimer’s Disease, 2021.
[3]L. García-Terriza, J. L. Risco-Martín, G. R. Roselló, and J. L. Ayala, “Predictive and diagnosis models of stroke from hemodynamic signal monitoring,” Medical & Biological Engineering & Computing, vol. 59, no. 6, pp. 1325–1337, 2021.
[4]J. A. Matias-Guiu et al., “Machine learning for neuropsychological assessment of Alzheimer’s disease and behavioral variant frontotemporal dementia,” Alzheimer’s & Dementia, vol. 17, p. e053036, 2021.
[5]V. Pytel et al., “Diagnosis of Alzheimer’s disease and frontotemporal dementia using FDG-PET: Application of genetic algorithms,” Alzheimer’s & Dementia, vol. 17, p. e052963, 2021.

[6]C. Moral-Rubio et al., “Application of machine learning to electroencephalography for the diagnosis of primary progressive aphasia: A pilot study,” Brain Sciences, vol. 11, no. 10, p. 1262, 2021.
[7]J. Gálvez-GoicurÍa, J. Pagán, A. B. Gago-Veiga, J. M. Moya, and J. L. Ayala, “Cluster-then-classify methodology for the identification of pain episodes in chronic diseases,” IEEE Journal of Biomedical and Health Informatics, vol. 26, no. 5, pp. 2339–2350, 2021.
[8]J. C. Salinas-Hilburg, M. Zapater, J. M. Moya, and J. L. Ayala, “Energy-aware task scheduling in data centers using an application signature,” Computers & Electrical Engineering, vol. 97, p. 107630, 2022.
[9]F. Garcia-Gutierrez et al., “Diagnosis of Alzheimer’s disease and behavioural variant frontotemporal dementia with machine learning-aided neuropsychological assessment using feature engineering and genetic algorithms,” International journal of geriatric psychiatry, vol. 37, no. 2, 2022.
[10]J. Díaz-Álvarez et al., “Genetic algorithms for optimized diagnosis of Alzheimer’s disease and Frontotemporal dementia using Fluorodeoxyglucose positron emission tomography imaging,” Frontiers in aging neuroscience, vol. 13, p. 983, 2022.
[11]N. Esteban-García, L. C. Fernández-Beltrán, J. M. Godoy-Corchuelo, J. L. Ayala, J. A. Matias-Guiu, and S. Corrochano, “Body Complexion and Circulating Lipids in the Risk of TDP-43 Related Disorders,” Frontiers in Aging Neuroscience, vol. 14, p. 838141, 2022.
[12]K. Henares, J. L. Risco-Martín, J. L. Ayala, and R. Hermida, “Efficient micro data centres deployment for mobile healthcare monitoring systems in IoT urban scenarios,” Journal of Simulation, vol. 16, no. 6, pp. 589–603, 2022.
[13]J. A. Matias-Guiu et al., “Neuropsychological predictors of fatigue in post-COVID syndrome,” Journal of Clinical Medicine, vol. 11, no. 13, p. 3886, 2022.
[14]C. Villalaín, I. Herraiz, D.-D. Olmo, P. Angulo, J. L. Ayala, and A. Galindo, “Prediction of Delivery Within 7 Days After Diagnosis of Early Onset Preeclampsia Using Machine-Learning Models,” Frontiers in Cardiovascular Medicine, vol. 9, pp. 1–9, 2022.
[15]F. García-Gutierrez et al., “GA-MADRID: Design and validation of a machine learning tool for the diagnosis of Alzheimer’s disease and frontotemporal dementia using genetic algorithms,” Medical & Biological Engineering & Computing, vol. 60, no. 9, pp. 2737–2756, 2022.
[16]L. Hernández-Lorenzo, M. Hoffmann, E. Scheibling, M. List, J. A. Matías-Guiu, and J. L. Ayala, “On the limits of graph neural networks for the early diagnosis of Alzheimer’s disease,” Scientific Reports, vol. 12, no. 1, p. 17632, 2022.
[17]J. A. Matias-Guiu et al., “Development of criteria for cognitive dysfunction in post-COVID syndrome: the IC-CoDi-COVID approach,” Psychiatry Research, vol. 319, p. 115006, 2023.
[18]A. Gonzalez-Martinez et al., “Classification of the pain curve and semiology of a migraine crisis,” in JOURNAL OF HEADACHE AND PAIN, 2022, vol. 23, no. SUPPL 1.
[19]A. Gonzalez-Martinez et al., “Prediction of a migraine crisis in real-time using a wearable device,” in JOURNAL OF HEADACHE AND PAIN, 2022, vol. 23, no. SUPPL 1.
[20]J. A. Matias-Guiu et al., “Development of criteria for cognitive dysfunction in post-COVID syndrome: the IC-CoDi-COVID approach (preprint),” 2022.
[21]L. Hernández-Lorenzo et al., “A data-driven approach to complement the A/T/(N) classification system using CSF biomarkers,” CNS Neuroscience & Therapeutics, 2023.

C.2. Conferences and meetings

[1]L. García-Temza, J. L. Risco-Martín, J. L. Ayala, G. R. Roselló, and J. M. Camarasaltas, “Comparison of different machine learning approaches to model stroke subtype classification and risk prediction,” in 2019 Spring Simulation Conference (SpringSim), 2019, pp. 1–10.

[2]F. P. Bravo, A. A. D. Barrio, and J. L. Ayala, “A study on the parallelization of moeas to predict the patient’s response to the onabotulinumtoxina treatment,” in Proceedings of the 2019 Summer Simulation Conference, 2019, pp. 1–12.
[3]S. Pérez, J. Pérez, P. Arroba, R. Blanco, J. L. Ayala, and J. M. Moya, “Predictive GPU-based ADAS management in energy-conscious smart cities,” in 2019 ieee international smart cities conference (isc2), 2019, pp. 349–354.
[4]K. Henares, J. L. Risco-Martín, J. L. Ayala, and R. Hermida, “Unit testing platform to verify DEVS models,” in Proceedings of the 2020 Summer Simulation Conference, 2020, pp. 1–11.
[5]J. Galvez-Goicuria, J. Pagan, L. Perez, J. Catalina-Gomez, J. M. Moya, and J. L. Ayala, “Reproducible and accurate subject-wise sleep posture detection by detecting and removing turns,” in 2022 IEEE International Conference on Omni-layer Intelligent Systems (COINS), 2022, pp. 1–6.
[6]L. Hernandez-Lorenzo, I. S. Ilundain, and J. L. A. Rodrigo, “Timeseries biomarkers clustering for Alzheimer’s Disease progression,” in 2022 IEEE International Conference on Omni-layer Intelligent Systems (COINS), 2022, pp. 1–7.
[7]M. J. Gil-Moreno et al., “PROGNOSTIC VALUE OF AT (N) CLASSIFICATION IN CSF USING CLUSTERING ANALYSIS,” 2023.

C.3. Research projects and contracts

Research and development of a medical tDCS device portable device with AI for home therapies - Funded by ION Clinics (2023 - 2024)

Data processing and machine learning techniques for the personalization of tDCS therapies - Funded by ION Clinics (2023 - 2024)

Two-phase immersion cooled micro data center for biomedical applications - Funded by MINECO (2020 - 2023)

Analysis of data fusion and processing techniques to combine electrophysiological and hemodynamic signals in multimodal systems with medical application - Funded by Arquimea Research (2022)

Personalized therapy using bipolar needle and machine learning in percutaneous ultrasound-guided neurostimulation - Funded by ION Clinics (2022)

Big-Data techniques for modeling, simulation and optimization of the interconnected city - Funded by Santander Bank (2018 - 2020)

Characterization of arterial hypertension phenotypes using machine learning techniques on the CardioRisc database - Funded by Spanish Society of Hypertension - Spanish League for the fight against arterial hypertension (2019)

Development of an intelligent engine for wind predictors - Funded by UNATEC (2017 - 2018)

Optimization of the Use of Renewable Energies through Energy Generation and Demand Modeling Techniques in Smartgrids - Funded by Iberdrola (2016 - 2017)