CV Date	10/02/2025

Part A. PERSONAL INFORMATION

First Name	Susana		
Family Name	Patón Álvarez		
Sex	Not Specified	Date of Birth	
ID number Social Security, Passport			
URL Web			
Email Address	spaton@ing.uc3m.es		
Open Researcher and Contributor ID (ORCID)	0000-0003-0911-2642		

A.1. Current position

Job Title	TITULAR DE UNIVERSIDAD / ASSOCIATE PROFESSOR		
Starting date	2009		
Institution	Universidad Carlos III de Madrid		
Department / Centre	Tecnología Electrónica / Escuela Politécnica Superior		
Country		Phone Number	
Keywords	Circuits for signal treatment and instrumentation; Conversion a/d y d/a for instrumentation; Tools of design of integrate circuits; Design of mixed-signal integrated circuits		

A.2. Previous positions (Research Career breaks included)

Period	Job Title / Name of Employer / Country
2019 - 2023	SUBDIRECTORA ACADEMICA DPTO. TECNOLOGIA ELECTRONICA / ACADEMIC DEPUTY DIRECTOR OF ELECTRONIC TECHNOLOGY DEPT / Universidad Carlos III de Madrid
2014 - 2016	DIRECTOR DEL MASTER OFICIAL EN INGENIERIA DE TELECOMUNICACION / HEAD OF MASTER IN TELECOMMUNICATIONS ENGINEERING / Universidad Carlos III de Madrid
2014 - 2016	SUBDIRECTOR DE LA EPS / EPS DEPUTY DIRECTOR / Universidad Carlos III de Madrid

A.3. Education

Degree/Master/PhD	University / Country	Year
Programa Oficial de Doctorado en Ingeniería Eléctrica, Electrónica y Automática	Universidad Carlos III de Madrid	2005
Ingeniero Industrial Especialidad Automática y Electrónica Industrial	Universidad Carlos III de Madrid	1998

Part B. CV SUMMARY

Susana Paton obtained the degree in Industrial Engineering in January 1998 from the Carlos III University of Madrid. In March of that same year, she joined the Department of Electronic Technology as an Assistant Professor, under the supervision of Prof. Emilio Olías. Until 2001, she participated in several military projects with the Army, in which they were involved as a subcontracted entity for a Spanish company, obtaining a special distinction from the Community of Madrid as a model of University-Industry collaboration. In 2000, she started working with Prof. Luis Hernández and developed her doctoral thesis in the microelectronic field in cooperation with the multinational Infineon Technologies, making several stays in one of its design centers. This thesis, defended in January 2005, was awarded the Extraordinary Award of the Carlos III University of Madrid (http://www.uc3m.es/ss/Satellite/Doctorate/_/TextoMixta/1371212732292/).

Since 2009, she has held a position as Associate Professor in the same Department, and she has developed her research activity by participating in and leading various projects with public and competitive funding, as well as private contracts. Her career has a strong component of technology transfer to microelectronics companies, such as Infineon Technologies or Intel. She has trained several doctors who are currently working in microelectronics companies in Spain and Europe.

As a result of her research activity, she is the author and co-author of more than 60 publications in international journals and conferences, with more than 800 citations, and is also a co-inventor of several international patents with the industry. She has participated as a volunteer in IEEE, serving as secretary and president of the Spanish chapter of the IEEE Circuits and Systems society between 2017 and 2021. She also participates as a volunteer in activities to promote STEM disciplines among girls and young women. Within the Carlos III University, she has developed various representation and management activities since her beginnings as an Assistant, representing different groups in the Department Council and the Board of the Higher Polytechnic School, and performing different responsibilities associated with the deputy director of the Department and the deputy director of the Higher Polytechnic School.

Part C. RELEVANT ACCOMPLISHMENTS

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

AC: corresponding author. (nº x / nº y): position / total authors. If applicable, indicate the number of citations

1 **Scientific paper**. V. Medina; L. Alvero-Gonzalez; E. Gutierrez; L. Hernandez; (5/5) S. Paton (AC). 2024. Analysis of VCO-Based Continuous-Time ΣΔ ADCs Using a Subset of Phases as the Feedback Signal. IEEE Transactions on Circuits and Systems II: Express Briefs. IEEE. 71-6, pp.2946-2950.

2 **Scientific paper**. Noviello, Michele; Garvi, Ruben; Quintero, Andres; Hernandez, Luis; Paton, Susana. 2023. A Time-Encoded Capacitance-to-Digital Converter based on a Switched-Capacitor Feedback. IEEE Sensors Letters. IEEE. 7-11. ISSN 2475-1472. https://doi.org/10.1109/LSENS.2023.3320061

3 **Scientific paper**. V. Medina; R. Garvi; E. Gutierrez; (4/5) S. Paton; L. Hernandez. 2023. A Gray-Encoded Ring Oscillator for Efficient Frequency-to-Digital Conversion in VCO-Based ADCs. IEEE Transactions on Circuits and Systems II: Express Briefs. IEEE. 70-3. ISSN 1549-7747.

4 **Scientific paper**. J. A. Miranda; A. Paez-Montoro; C. Lopez-Ongil; S. Paton. 2023. Self-Adjustable Galvanic Skin Response Sensor for Physiological Monitoring. IEEE Sensors Journal. IEEE. 23-3. ISSN 1530-437X.

5 **Scientific paper**. P. Vera; A. Wiesbauer; (3/3) S. Paton. 2022. An Analysis of Noise in Multi-Bit ΣΔ Modulators with Low-Frequency Input Signals. Sensors. MDPI. 22, pp.7458. ISSN 1424-8220.

6 **Scientific paper**. Leidy-Mabel Alvero-Gonzalez; Victor Medina; Vahur Kampus; (4/6) Susana Paton; Luis Hernandez; Eric Gutierrez. 2021. Ring-Oscillator with Multiple Transconductors for Linear Analog-to-Digital Conversion. Electronics. MDPI. 10-12. ISSN 2079-9292.

7 **Scientific paper**. Fernando Cardes; Victor Medina; (3/4) Susana Paton; Luis Hernandez. 2019. Clock Jitter Analysis of Continuous-Time Sigma-Delta Modulators Based on a Relative Time-Base Projection. IEEE Transactions on Circuits and Systems I: Regular Papers. IEEE. ISSN 1549-8328.

C.2. Conferences and meetings

1 Páez-Montoro, Alba; López-Ongil, Celia; García-Valderas, Mario; Paton, Susana. A Comparison of Frequency-to-Digital Conversion Architectures in VCO-ADCs Built with Standard Cells. 2024 39th Conference on Design of Circuits and Integrated Systems (DCIS). 2024. Italy. Participatory - oral communication.

2 Noviello, Michele; Quintero, Andres; Paton, Susana. Parasitic Capacitance Cancellation and SNR Improvement for Capacitance-to-Digital Converters based on a Switched-Capacitor Feedback. 2024 39th Conference on Design of Circuits and Integrated Systems (DCIS). 2024. Italy. Participatory - oral communication.

3 Noviello, Michele; Garvi, Ruben; Quintero, Andres; Paton, Susana. System Analysis of Capacitance-to-Digital Converters Based on a Switched-Capacitor Feedback. 2024 IEEE 67th International Midwest Symposium on Circuits and Systems (MWSCAS). IEEE CASS. 2024. United States of America. Participatory - oral communication.

4 Zbida, Nordin; Paton, Susana; Gutierrez, Eric. A 3rd-order Noise Shaped Multistage Open-Loop Current Controlled Oscillator-based ADC with Non-Linearity Compensation. 2024 IEEE International Symposium on Circuits and Systems (ISCAS). 2024. Singapore. Participatory - oral communication.

5 Paez-Montoro A.; De Mena-Pacheco, J.; Lopez-Vallejo, M.; Lopez-Ongil, C.; Paton, S.. Ring Oscillator Circuits in Flexible aIGZO Technology for Biosignal Acquisition. 38th Conference on Design of Circuits and Integrated Systems (DCIS 2023). 2023. Spain.

6 Noviello, M; Quintero, A; Paton, S. An Unbiased MEMS Capacitance-Controlled Oscillator as a Microphone for HMI Applications. 2022 Austrochip Workshop on Microelectronics (Austrochip). 2022. Austria.

7 Vera, P; Straeussnigg, D; Medina, V; Hernandez, L; Paton, S. Optimal reconfiguration instant in ΣΔ Modulators. 2022 IEEE International Symposium on Circuits and Systems (ISCAS). IEEE CASS. 2022. United States of America.

8 Vera, Pablo; Paton, Susana. DAC mismatch shaping in Discrete Time Sigma Delta ADCs with non uniform quantizer. 2020 XXXV Conference on Design of Circuits and Integrated Systems (DCIS). 2020. Spain. Participatory - oral communication.

9 Medina, V; Paton, S; Gutierrez, E; Hernandez, L. A Model of Continuous-Time Sigma Delta Modulation Based on Pulse Frequency Encoding. 2020 IEEE International Symposium on Circuits and Systems (ISCAS). IEEE CASS. 2020. Spain.

10 Gutierrez, Eric; Perez, Carlos; Paton, Susana; Hernandez, Luis. Low Power Phase-Encoded MAC Accelerator for Smart Sensors with VCO-based ADCs. 2020 IEEE 63rd International Midwest Symposium on Circuits and Systems (MWSCAS). IEEE. 2020. United States of America. Participatory - oral communication.

11 Medina, Victor; Alvero-Gonzalez, Leidy Mabel; Gutierrez, Eric; Paton, Susana; Hernandez, Luis. Continuous Time Sigma-Delta Modulator with VCO-based integrators and optimized NTF zeros. 2019 26th IEEE International Conference on Electronics, Circuits and Systems (ICECS). IEEE. 2019. Italy. Participatory - oral communication.

12 Vera, P; Paton, S; Straeussnigg, D. Idle Tones Reduction in Digital Single-Bit ?? Modulators. 2019 IEEE International Symposium on Circuits and Systems (ISCAS). IEEE CASS. 2019. Japan.

13 Gutierrez, E; Hernandez, L; Paton, S; Rombouts, P. Optimal NTF zero placement in MASH VCO-ADCs with higher order noise shaping. 2018 25th IEEE International Conference on Electronics, Circuits and Systems (ICECS). IEEE CASS. 2018. France.

C.3. Research projects and contracts

1 **Project**. Microelectrónica flexible para la integración eficiente de Computación Afectiva en sistemas on-the-edge -Bindi-Tattoo. Ministerio de Ciencia e Innovación. Celia Lopez Ongil. (Universidad carlos III de Madrid). 01/09/2023-31/08/2027. 70.000 €.

2 **Project**. Time Encoded Voice Interfaces (TEVI). H2020-MSCA-ITN-2020 EID, EUROPEAN COMMISSION RESEARCH EXECUTIVE AGENCY. Luis Hernandez. (Escuela Politécnica Superior). 01/11/2020-30/09/2024. 752.714 €. UC3M es la entidad coordinadora de esta EID (European Industrial Doctorate), e Infineon Technologies es la entidad industrial. Participo como lider de un WP y directora de tesis de uno de los 3 ESR q...

3 **Project**. Computación en el borde basada en codificación temporal. Agencia estatal de Investigación (AEI). Luis Hernandez. (Universidad Carlos III de Madrid). 01/09/2021-31/08/2024.

4 **Project**. Sapientiae4Bind - CyberPhysical System for Domestic Violence Tracking and Prevention. Agencia estatal de Investigacion (AEI). Carmen Pelaez. (Universidad Carlos III de Madrid). 01/12/2021-30/11/2023.

5 **Project**. identificación y visibilización de sesgos de género en enfermedades mediante la medición del dolor a través de contenido audiovisual y señales fisiológicas (ENDOMEDEA-CM-UC3M). Comunidad de Madrid. Martinez Perez. (Universidad Carlos III de Madrid). 01/01/2022-31/03/2023.

6 **Project**. Adquisición y Procesado de Señal Analógica con Circuitos Maximalmente Digitales (PROSA). Ministerio de Economía, Industria y competitividad. Susana Patón Álvarez. (Universidad Carlos III de Madrid). 01/01/2018-31/12/2020. 84.700 €. Principal investigator.

7 **Project**. Y2018-TCS5046, EMPATÍA-CM. protEcción integral de las víctimas de violencia de género Mediante comPutación AfecTIva multimodAl. CAM-PROYECTOS SINÉRGICOS DE I+D EN NUEVAS Y EMERGENTES ÁREAS CIENTÍFICAS. Celia López Ongil. (Universidad Carlos III de Madrid). 01/01/2019-21/12/2020. 814.000 €. Participo en el desarrollo de la parte de sensado del dispositivo

8 **Project**. Interfaces de adquisición de datos referenciados en tiempo para sensores, imagen medica y comunicaciones. (TRIFASIC). Ministerio de Economía, Industria y competitividad. Luis Hernández Corporales. (Universidad Carlos III de Madrid). 01/01/2015-31/12/2017. 59.169 €. Principal investigator.

9 **Project**. Silicon Microphone (SiMic) (Marie Curie). UNION EUROPEA FP7-PEOPLE-2013-IAPP. Luis Hernandez Corporales (Univ. Carlos III de Madrid). (Universidad Carlos III de Madrid). 01/10/2013-30/09/2017. 107.774 €.

10 **Contract**. System and circuit architectures for wide-band time-based analog-to-digital converters MAXLINEAR. Susana Paton, Co-IP. 01/01/2022-01/01/2025. 120.000 €.

11 **Contract**. Sigma Delta ADC topologies optimized for Microphones in the presence of Ultrasonic signals Infineon Technologies Austria AG. Susana Paton. 01/11/2018-01/11/2022. 84.000 €.

12 **Contract**. System and circuit architecture of a VCO-based wide-band with continuous time sigma delta modulator INTEL AUSTRIA GMBH. 01/05/2018-01/05/2020. 110.000 €.

13 **Contract**. Architecture design of 50/100 MHz MASH PWM-ADC INTEL AUSTRIA GMBH. Susana Patón Álvarez. 01/10/2015-30/01/2017. 9.000 €.

14 **Contract**. Design of Data Converters for a Digital Microphone and Environmental Sensors. Infineon Technologies Austria AG. Luis Hernández Corporales. 01/07/2015-01/07/2018.

C.4. Activities of technology / knowledge transfer and results exploitation

1 Antonio Di Giandomenico; Eric Gutierrez Fernandez; Luis Hernandez Corporales; Susana Paton Alvarez. EP3595178B1. Continuous time Sigma Delta Modulator 06/04/2022. INTEL CORP USA.

2 Susana Paton Alvarez; Juan Antonio Torreño Carrera; Elmar Bach; Dietmar Strauessnigg; Andreas Wiesbauer. US10008990B2. System and Method for Acoustic Transducer Supply United States of America. 26/06/2018. Infineon Technologies.

3 Susana Paton Alvarez; Laura Consea-Peraleja; Dietmar Straussnigg; Andreas Wiesbauer. US9577663B1. Bandwidth extension of oversampled analog-to-digital converters by means of gain boosting United States of America. 21/02/2017. Infineon Technologies.