

## Program

24 November

### Opening Session

8:30 **Registration**

9:00 **Welcome Session** (Terraços dos Ave)  
**Chair:** *José Machado da Silva (U.Porto, INESC TEC)*

### Keynote Speech 1 (Terraços dos Ave)

9:30 [Yervant Zorian](#) – Silicon Lifecycle Management: Trends and Solutions  
**Chair:** *José Silva Matos (U.Porto, INESC TEC)*

10:30 **Coffee Break**

**Session A1** (Terraços dos Ave) — **AMS Design I**  
**Chair:** *Francesc Moll (ETSETB-UP Catalunya); João Paulo Carmo (U. São Paulo)*

11:00 Energy-Efficient Symmetrical Cascode OTA in a 130 nm CMOS Process  
*M. Pilar Garde, Antonio Lopez-Martin, Jose M. Algueta Miguel, Javier Beloso-Legarra and Jaime Ramirez-Angulo*

**Session A2** (José Régio) — **Hyperspectral Imaging**  
**Chair:** *Ricardo Carmona-Galá, Yubal Barrios (U. of Las Palmas de Gran Canaria)*

11:00 Stitching Technique Based on SURF for Hyperspectral Pushbroom Linescan Cameras  
*Manuel Villa, Jaime Sancho, Marta Villanueva, Gemma Urbanos, Pallab Sutradhar, Gonzalo Rosa, Guillermo Vazquez, Alberto Martin, Miguel Chavarrias, Luis Perez, Angel Nuñez, Alfonso Lagares, Eduardo Juarez and Cesar Sanz*

11:20 Design Method of Analog Sigmoid Function and its Approximate Derivative  
*Lylia Thiziri Chabane, Patricia Desgreys and Dang-Kiên Germain Pham*

11:20 Sensors Characterization for Hyperspectral Microscopy Targeting Enhanced Medical Histology  
*Laura Quintana Quintana, Samuel Ortega, Raquel Leon, Himar Fabelo Gómez, Gustavo Marrero Callico, Carlos López, Marylène Lejeune and Ramon Bosch*

11:40 Design of a Ring-Amplifier Robust Against PVT Variations in Deep-Nanoscale FinFET CMOS  
*João Xavier, Pedro Barquinha and João Goes*

11:40 Hyperspectral VNIR and NIR Sensors for the Analysis of Human Normal Brain and Tumor Tissue  
*Raquel Leon, Himar Fabelo, Samuel Ortega and Gustavo M. Callico*

12:00 Trade-offs and Limitations in Energy-Efficient Inverter-based CMOS Amplifiers  
*Ana Correia, Vítor Grade Tavares, Pedro Barquinha and João Goes*

12:00 Evaluating the use of Hyperspectral Imaging as Complementary Blood Sample Tests  
*Himar Fabelo, Raquel Leon, Samuel Ortega, Francisco Balea-Fernandez, Bernardino Clavo, Gustavo M. Callico and Ana Wagner*

12:30 **Lunch**

## Program

### 24 November

<b>Session B1</b> (Terraços dos Ave) — <b>AMS Design II</b>		<b>Session B2</b> (José Régio)— <b>Biomedical Electronics</b>	
<b>Chair:</b> <i>João Goes (U. Nova Lisboa); Miquel Roca (U. Illes Balears)</i>		<b>Chair:</b> <i>José Machado da Silva (U. Porto, INESC TEC)</i>	
14:00	Design and Layout Considerations of a D-Band SiGe LNA for Radiometric Applications  <i>Alvaro Urain, David Del Río, Iñaki Gurutzeaga, Héctor Solar, Andoni Beriain and Roc Berenguer</i>	14:00	Modeling Edema Evolution with Electrical Bioimpedance: Application to Heart Fail Patients  <i>Martin Puertas, Luis Giménez, Ana Pérez, Santiago F. Scagliusi, Pablo Pérez, Alberto Olmo, Gloria Gloria Huertas, Javier Medrano and Alberto Yúfera</i>
14:20	A Switching-Mode Power Recycling System for a Radio-Frequency Outphasing Transmitter  <i>Bruno Saraiva, Cândido Duarte and Vitor Tavares</i>	14:20	In Vitro Impedance Spectroscopy: a MEA-based Measurement Bench for Myoblasts Cultures Monitoring  <i>Alexia Bailleul, Julien Claudel, Florence Poulletier De Gannes, Gilles N'Kaoua, Florian Kolbl, Fabien Soulier, Noëlle Lewis, Serge Bernard and Sylvie Renaud</i>
14:40	Charge Pump Circuit in 65nm CMOS for Neural Stimulation on Deep Brain Stimulation  <i>Tiago Matheus Nordj, Vitor Martins Barbosa, Rodrigo Henrique Gounella, Godfred Assan, Maximilian Luppe, João Navarro Soares Junior, João Paulo Carmo, Erich Talamoni Fonoff and Eduardo Colombari</i>	14:40	Graphene LC Oscillator for Biosensing Applications  <i>Ivo Colmiais, Jérôme Borme, Pedro Alpuim and Paulo Mendes</i>
15:00	A 65nm Current and Voltage Reference with Improved Line Regulation for Implantable Biosensors  <i>Javier de Mena Pacheco and Marisa López Vallejo</i>	15:00	Window Polarization in PCA-based Analysis of Non-invasive Fetal ECG recordings  <i>Luis Oyarzun, Encarnación Castillo, Luis Parrilla and Antonio García</i>
15:30	<b>Coffee Break</b>		
<b>Session C</b> (Terraços dos Ave) — <b>Reconfigurable Systems and IoT</b>			
<b>Chair:</b> <i>Carlos Lopez Barrio (U. Politécnica de Madrid); Jaime Jiménez (U. del País Vasco)</i>			
16:00	Runtime Reconfigurable System for Decommissioned Satellite Identification and Capture  <i>Raquel De Esteban, Fernando Manteca, Marcos Martinez and Pablo Sánchez</i>		
16:20	Run-time Monitoring and ML-based Modeling in Reconfigurable Multi-accelerator Systems  <i>Juan Encinas, Alfonso Rodríguez, Andrés Otero and Eduardo de la Torre</i>		
16:40	EDAC Implementation on a Data Lossless Compressor Compliant with the CCSDS 121.0-B-3 Standard  <i>Diego Ventura, Yubal Barrios, Antonio José Sánchez-Clemente and Roberto Sarmiento</i>		
17:00	Data Relevance-Aware Dynamic Sensing Technique with Battery Lifetime Guarantee for Wireless Sensor Nodes  <i>David Arnaiz, Francesc Moll, Eduard Alarcón and Xavier Vilajosana</i>		
<b>Welcome reception (offered by the Vila do Conde City Hall)</b>			
18:30	<b>Auditório Municipal</b>		

## Program

25 November

### Keynote Speech 2 (Terraços dos Ave)

9:00 [Pedro Barquinha](#) – “Enabling Technologies for Large Area, Flexible and Autonomous Multifunctional Systems”  
Chair: *Vítor Grade Tavares (U.Porto, INESC TEC)*

### Posters Session (Terraços dos Ave)

Chair: *António José Araújo (U.Porto, INESC TEC)*

Contribution to Wake-up Radio Design for Wireless Sensor Network

*Ruochen Ding and William Tatinian*

Future of Wearables for Emotion Recognition

*Alba Paez Montoro*

Design of Readout Channels for Direct-ToF LiDAR

*Mojtaba Parsakordasiabi*

Countermeasures to Leakage Power Analysis Attacks in FDSOI Circuits

*Kenneth Palma*

Targeting Cancer Detection Through Hyperspectral Microscopic Technology

*Laura Quintana Quintana, Gustavo Marrero Callico and Samuel Ortega*

Digital IR Signal Processing for Climate Characterization in Planetary Exploration

*Alberto Ramirez-Barcenas*

A Low-Power Highly-Linear Digital Pixel Sensor with Lock-In Capabilities in a 0.18- $\mu\text{m}$  CMOS Technology

*María Ángeles Serrano*

10:00

Acquisition, Processing and Simulation of Extracellular Potentials in Cardiac Biopsies

*Antonio Velarte*

High-Level Inference On-Chip Enabled by Compressed Sensing

*Amir Khan, Jorge Fernandez-Berni and Ricardo Carmona-Galán*

Neural Low-Noise Amplifier with Notch- Filter with Low-Power in 65nm CMOS

*Vitor Barbosa, Joao Carmo, Erich Talamoni Fonoff, Joao Navarro, Eduardo Colombari, Rodrigo Gounella, Tiago Nordi, Matheus Passos da Rocha and Maximilian Luppe*

Evaluating Fundamental Matrix Operations on Multi-core System-on-Chip

*Pablo Miguel Aviles Delgado, Jose Antonio Belloch Rodriguez, Almudena Lindoso Muñoz and Luis Entrena Arrontes*

Study and Design of Nanostructures to Improve the Characteristics of Next-generation Photonic Devices.

*Lorena Escandell Varela, Braulio Garcia-Camara and Jose Manuel Sanchez Pena*

Affective Computing Through Wearable Devices: Optimizing wireless communications with compressed sensing

*Laura Gutiérrez-Martín*

10:30 **Coffee Break**

## Program

25 November

### Session D (Terraços dos Ave)— Embedded and High-performance Computing

Chair: Antonio J. Torralba (U. Sevilla); Marisa Lopez-Vallejo (U. Politécnica de Madrid)

Exploiting Correlation in Stochastic Computing Based Deep Neural Networks

11:00 *Christiam Camilo Franco Frasser, Pablo Linares, Alejandro Morán, Joan Font-Rosselló, Vincens Canals, Miquel Roca, Teresa Serrano Gotarredona and Josep Lluís Rosselló*

Performance Evaluation of State-of-the-art CNN Architectures for the On-board Processing of Remotely Sensed Images.

11:20 *Romén Neris, Raúl Guerra, Sebastián López and Roberto Sarmiento*

Stochastic Computing Co-processing Elements for Evolving Autonomous Data Partitioning

11:40 *Alejandro Morán Costoya, Vicente José Canals Guinand, Plamen P Angelov, Christiam Camilo Franco Frasser, Erik Sebastian Skibinsky Gitlin, Joan Font Rosselló, Eugenio Miguel Isern Riutort, Miguel Jesús Roca Adrover and José Luis Rosselló Sanz*

An Embedded GPU Accelerated Hyperspectral Video Classification System in Real-Time

12:00 *Jaime Sancho, Manuel Villa, Gemma Urbanos, Marta Villanueva, Pallab Sutradhar, Gonzalo Rosa, Alberto Martín, Guillermo Vazquez, Miguel Chavarrias, Rubén Salvador, Luis Perez, Angel Nuñez, Alfonso Lagares, Eduardo Juarez and César Sanz*

A Library-based Tool to Translate High Level DNN Models into Hierarchical VHDL Descriptions

12:20 *Pablo Rubio-Ibañez, Jose Javier Martinez-Alvarez and Gines Domenech-Asensi*

12:40 **Lunch**

### Posters Session (Terraços dos Ave)

14:00 Continuation of the posters session

### Panel Discussion (Terraços dos Ave)

15:00 **The Legacy of Pandemics for Engineering Education** (organized by the IEEE Portugal Education Chapter)

### Social Event — Trip

16:30 **Visit to Guimarães - Palace of the Duques of Braganza and Castel**

### Conference Dinner

20:00 **Pousada de Guimarães**

## Program

26 November

### Keynote Speech 3 (Terraços dos Ave)

9:30 [Leonel Sousa](#) – Modular Arithmetic-based Circuits and Systems for Emerging Technologies and Applications: Deep Neural Networks and Cryptography

Chair: *Luís Almeida (U. Porto, CISTER)*

10:30 **Coffee Break**

**Session E1** (Terraços dos Ave) — EDA and Security

Chair: *Luís Almeida (U. Porto, CISTER);*

**Session E2** (José Régio)— Memory and Computing Devices

Chair: *João Canas Ferreira (U. Porto, INESC TEC); José Carlos Alves (U. Porto, INESC TEC)*

11:00 Evaluating the OpenAMP Framework in Real-time Embedded SoC Platforms

*Sara Alonso, Jesús Lázaro, Jaime Jiménez, Leire Muguira and Unai Bidarte*

FeFETs for Phase Encoded Oscillatory Based Computing

*Juan Núñez, Manuel Jiménez and María J. Avedillo*

11:20 Design Flow to Evaluate the Performance of Ring Oscillator PUFs on FPGAs

*Macarena Martinez-Rodriguez, Eros Camacho-Ruiz, Santiago Sánchez-Solano and Piedad Brox*

SRAM Performance Sensor

*Jorge Semião, Luís Santos and Marcelino Santos*

11:40 Low Cost AES Protection Against DPA Using Rolling Codes

*Pau Albiol, Salvador Manich, Daniel Arumi, Rosa Rodriguez-Montanes and Álvaro Gómez-Pau*

Simulation of Serial RRAM Cell Based on a Verilog-A Compact Model

*Binbin Yang, Daniel Arumi, Salvador Manich, Álvaro Gómez-Pau, Rosa Rodríguez-Montañés, Juan Bautista Roldan, Mireia Bargalló González, Francesca Campabadal and Liang Fang*

12:00 Multilevel Host-compiled Simulation Framework for ROS-based UAV Services Using ArduCopter

*Eugenio Villar, Hector Posadas, Javier Merino and Raul Gomez*

Comparative Analysis and Optimization of the SystemC-AMS Analog Simulation Efficiency of Resistive Crossbar Arrays

*Tommaso Rizzi, Emilio Pérez-Bosch Quesada, Christian Wenger, Cristian Zambelli and Davide Bertozzi*

12:20 Iterative Method for Performance Prediction Improvement of Integrated Circuits

*Gwenael Chaillou, Philippe Maurine, Jean-Marc Galliere and Nadine Azemard*

12:40 **Best poster presentation** (Terraços dos Ave)

12:50 **Closing Session** (Terraços dos Ave)

Chair: *José Machado da Silva (U.Porto, INESC TEC)*

13:00 **Lunch**