

SBCCI 2023

Monday, August 28th

Tutorials

Time	Title/Authors
09:00 – 10:40	Design of Supply Regulators for High Efficiency RF Transmitters Jose Silva-Martinez, Texas A&M University, College Station, EUA
11:00 – 12:40	Electronic Physical Design Automation - Fundamentals and Challenges Ricardo Reis, Universidade Federal do Rio Grande do Sul, Brazil
14:00 – 15:40	Approximate Computing: Advanced VLSI Design Techniques for Energy-Efficient CMOS Accelerators Sergio Bampi, Universidade Federal do Rio Grande do Sul, Brazil

SESSION SBCCI-1: Analog and Mixed Signal Circuits (4 artigos - 1h20min) - Terça - 14:20-15:40	
396	A Wireless Weatherproof Acoustic Sensor System to Detect Anomalies in Substation Power Transformers Gabriel Gialluca, Gustavo T. Gialluca, Bruno Masiero, Eduardo R. de Lima, Larissa M. Almeida and Fabiano Fruett
393	Evaluation and Comparison of Offset Compensation Techniques for a Multi-Stage Comparator Beatriz Rezende, João L. J. Brum, Martina C. Rodrigues, Lucas C. Severo, Alessandro Girardi, William Prodanov and Paulo C. C. de Aguirre
382	Revisiting the Ultra-Low Power Electronic Neuron Towards a Faithful Biomimetic Behavior* Théo P. Rioufol, Zalfa Jouni, Thomas Soupizet and Pietro M. Ferreira
360	Voltage Regulator with Ellipsoidal Transistors Marcos P. B. de Lima, Fernando Barúqui and Carlos F. T. Soares

SESSION SBCCI-2: Digital Circuits and Applications I (4 artigos - 1h20min) - Quarta - 14:00-15:20	
412	A Hardware Design for the Multi-Transform Module of the Versatile Video Coding Standard Bianca Silveira, Daniel Palomino, Claudio Diniz and Guilherme Corrêa

380	Evaluation of Imprecise Subtractors into Test Zone Search for VVC Encoding Rafael Ferreira, Luciano V. Agostini, Claudio Diniz and Bruno Zatt
386	4K UHD@60fps Design for the VVC Affine Motion Estimation Reconstructor* Marcello Muñoz, Denis Maass, Murilo Perleberg, Luciano V. Agostini, Guilherme Corrêa and Marcelo S. Porto
415	An Energy-Efficient Interpolation Unit targeting VVC Encoders with Approximate Adder* Rafael da Silva, Mateus Grellert and Ricardo A. L. Reis

SESSION SBCCI-3: EDA, Test and Reliability - I (4 artigos - 1h20min) - Quarta - 15:40-17:00	
352	FPGA Placement: Dynamic Decision Making Via Machine Learning Timothy Martin, Charlotte Barnes, Gary Grewal and Shawki Areibi
402	A Non-Blocking Multistage Interconnection using Regular Clock Schemes for QCA Circuits Stefan Leal, Michael Canesche, Omar Paranaiba, José A. Nacif and Ricardo Ferreira
406	Effect of Unique Table Implementation in the Performance of BDD Packages João Nespolo, Renato Peralta, Paulo Butzen and André I. Reis

SESSION SBCCI-4: SoC, NoC and Reconfigurable Circuits (5 artigos - 1h40) - Quinta - 9:00-10:40	
356	Implementation of Image Averaging on DRRA and DiMArch Architectures Pudi Dhilleswararao, Goudu Vamsi, Srinivas Boppu, Ritika Ratnu and Ahmed Hemani
365	Design of an Advanced System-on-Chip Architecture for Chaotic Image Encryption Arthur M. Lima, Lucas G. Nardo, Erivelton G. Nepomuceno, Janier A. Garcia and Jones Y. M. A. Silva
366	Secure Network Interface for Protecting IO Communication in Many-cores Gustavo Comarú, Rafael Faccenda, Luciano L. Caimi and Fernando G. Moraes
385	Hardware Implementation of a Sliding Detection Algorithm for Robotic Hands Using Force Sensors* Jose M. Peñaloza and Daniel M. Muñoz
411	Energy and Computing Assessment of Video Processing Kernels on CPU and FPGA platforms Fillipi Mangrich, Joao G. F. Foes, Mateus Grellert and Ismael Seidel
399	FPGA-Based Brain-Computer Interface System for Real-Time Eye State Classification Christian A. Acuña, Christian Flores, Jimmy Tarrillo

SESSION SBCCI-5: Radio Frequency Circuits (5 artigos - 1h40min) - Quinta - 11:20-13:00	
357	A 1.2 V, 80-230 MHz, 1.75 mW Phase Locked Loop N-Integer Clock Synthesizer Mateus Castro, Leonardo S. Moraes, Fabio K. Pereira and Eduardo R. Lima
367	A 24.25-30.5GHz Fully Integrated SiGe Phase Shifter/VGA/Power Amplifier in 0.13 μ m BiCMOS Technology for 5G Beamforming Applications Anais Tourissaud, Eric Kerherve, Nathalie Deltimple, Steeven Voisin and Romain Mathieu
404	Design of Oscillator and Charge Pump for the Startup of Ultra-Low-Voltage Energy Harvesters Franciele Nornberg, Marcio B. Machado, Rafael Radin, Carlos Galup-Montoro and Marcio Schneider
359	Jitter Noise Impact on Analog Spiking Neural Networks: STDP Limitations* Zalfa Jouni, Théo P. Rioufol, Siqi Wang, Aziz Benlarbi-Delai and Pietro M. Ferreira
369	Study of an Avalanche Compensation Mirror for SiGe High Performance Power Amplifiers dedicated to 5G applications Anais Tourissaud, Eric Kerherve, Nathalie Deltimple and Romain Mathieu

SESSION SBCCI-6: EDA, Test and Reliability - II (6 artigos - 2h) - Sexta - 8:40-10:40	
353	Addressing Single-Event-Multiple-Transient Faults in Asynchronous RH-Click Controllers* Felipe Kuentzer, Christos Georgakidis, Christos Sotiriou and Milos Krstic
379	Memory Controller with Adaptive ECC for Reliable System Operation Marco P. Stefani, Cesar A. M. Marcon, Felipe Silva and Jarbas Silveira
383	A Detailed Electrical Analysis of SEE on 28 nm FDSOI SRAM Architectures Cleiton Marques, Walter C. Bartra, Frédéric Wrobel, Leonardo Brendler Alexandra Zimpeck, Paulo Butzen and Cristina Meinhardt
391	Towards a Machine Learning based Method for Indirect Test Generation of Mixed-Signal Circuits* Allan F. G. Ferreira, Lucas Zilch, Vinícius Navarro, Marcelo Lubaszewski and Tiago Balen
401	Power and Performance Costs of Radiation-hardened ML Inference Models Running on Edge Devices Geancarlo Abich, Anderson I. da Silva, Jonas F. Gava, Altamiro A. Susin, Ricardo A. L. Reis and Luciano C. Ost
408	ATMR Design by Construction based on Two-level ALS Gabriel Ammes, Guilherme B. Manske, Paulo Butzen, André I. Reis and Renato P. Ribas

SESSION SBCCI-7: Visual Signal Processing Systems (4 artigos - 1h20min) - Sexta - 12:00-13:20	
355	Estimating Software and Hardware Video Decoder Energy Using Software Decoder Profiling Matthias Kränzler, André Kaup and Christian Herglotz
375	A New Approach to Video Coding Leveraging Hybrid Coding and Video Frame Interpolation Andre B. Brascher, Gabriela F. da Silveira, Luiz H. Cancellier, Ismael Seidel, Mateus Grellert and Jose L. Güntzel
395	Low-Energy and Reduced-Area Hardware Architecture for the Versatile Video Coding FME Vanio R. Filho, Nicole Citadin, Marcio Monteiro, Ismael Seidel, Mateus Grellert and Jose L. Güntzel
397	An UHD 4K@120fps Hardware for the VVC Prediction Refinement with Optical Flow* Murilo Perleberg, Marcello Muñoz, Denis Maass, Vladimir Afonso, Luciano V. Agostini and Marcelo S. Porto

SESSION SBCCI-8: Digital Circuits and Applications II (6 artigos - 2h) - Sexta - 14:40-16:40	
364	Assessment of Lightweight Cryptography Algorithms on ARM Cortex-M Processors Nicolas Moura, Joaquim Lucena, Eduardo V. Pereira, Ney L. V. Calazans, Luciano C. Ost, Fernando G. Moraes and Rafael F. Garibotti
363	Improving the Efficiency of Cryptography Algorithms on Resource Constrained Embedded Systems via RISC-V Instruction Set Extensions Fernando G. Moraes and Carlos G. A. Gewehr
390	Validating an Automated Asynchronous Synthesis Environment with a Challenging Design: RISC-V Willian A. Nunes, Marcos L. L. Sartori, Matheus T. Moreira, Fernando G. Moraes and Ney L. V. Calazans
381	Exploring Nanomagnetic Logic with Bennett Clocking Pedro A. Silva, Jeferson Chaves, José A. Nacif, Ricardo Ferreira and Omar V. Neto
362	AV1 Residual Syntax Elements Assessment and Efficient VLSI Architecture Jiovana Gomes, Rodrigo N. Wuerdig, Fábio L. L. Ramos and Sergio Bampi
388	New Modified 4:2 Approximate Compressors for Low-power Applications Vinícius Zanandrea and Cristina Meinhardt

In red the best paper nominees