ISCAS 2024

Program at a Glance

Time: UTC+8	Sunday, May 19	
07:45-08:30	**Registration** [Foyer of Taurus Room (Secretariat Room)]	
08:30-10:00	**Full-Day Tutorial** #1,# 2, #3 1. Mixed-Signal RF Transmitters (Instructor(s): David J. Allstot, Vanessa Chen, and Jeffrey S. Walling) [Room: Pisces 2]	**Half-Day Tutorial (Morning)** #1 1. More Efforts to Developing High-Performance PLLs with Jitter Reduction Approaching Sub-10fs (Instructor(s): Yong Chen (Nick)) [Room: Aquarius 1] 2. Tensor Regression: Methods and Applications (Instructor(s): Yipeng Liu, Jiani Liu) [Room: Aquarius 2] 3. Energy-Efficient AI-Native Wireless Communication Systems (Instructor(s): Martinez Alonso, Rodney, Martinez Alonso, Abdel) [Room: Aquarius 3] 4. Advanced Mixed Signal Concepts and Circuit Innovations Exploiting Active Bulk-Driven Techniques using 22nm FD-SOI CMOS Technology (22FDX) (Instructor(s): Marcel Runge, Enne Wittenhagen, Friedel Gerfers) [Room: Aquarius 4] 5. Design of Integrated CMOS-MEMS Wireless Sensors in the Age of Intelligent Systems (Instructor(s): Virgilio Valente, Nooshin Saeidi) [Room: Gemini 1] 6. Noise in Memristive Nanodevices and Circuits: A Journey from Understanding to Exploiting it (Instructor(s): Vasileios Ntinas, Georgios Ch. Sirakoulis) [Room: Gemini 2]
10:00-10:30		
10:30-12:30	2. Advanced Biomedical Imaging Technologies: Circuit Design and Techniques (Instructor(s): Yuanjin Zheng, Yongfu Li, Jian Zhao, Ka-Meng Lei) [Room: Pisces 1]	
12:30-13:30		**Lunch** [Venue: West Lobby, Foyer beside Aquarius 1]
13:30-15:00	3. Integrated Devices, Circuits and Systems for Quantum Computing (Instructor(s): Andreas Fuhrer Janett, Christian Enz, Andrei Vladimirescu, Fabio Sebastiano, Edoardo Charbon, Joseph Bardin, Sorin Voinigescu, Domenico Zito) [Room: Leo 1]	**Half-Day Tutorial (Afternoon)** #3 1. Using Neural Networks to Optimize the Design of Analog and Mixed-Signal Circuits and Systems (Instructor(s): José M. de la Rosa) [Room: Aquarius 1] 2. How to Model the Training and Inference of Analog-Based In-Memory Computing (AIMC) Systems (Instructor(s): Corey Lammie, Manuel Le Gallo, Malte Rasch) [Room: Aquarius 2] 3. Machine Learning for Automated Physical Design (Instructor(s): Ioannis Savidis, Pratik Shrestha) [Room: Aquarius 3] 4. Towards Battery-free and Low-cost Distributed Sensor Node: from Novel IC Approaches to System-level Industrial Design (Instructor(s): Orazio Aiello, Roberto La Rosa) [Room: Aquarius 4] 5. Hardware Security for Biomedical Circuits and Systems (Instructor(s): Ibrahim (Abe) M. Elfadel) [Room: Gemini 1] 6. New Era of Artificial Intelligence: Unleashing the Power of Large Models in Visual Applications (Instructor(s): Jiaying Liu, Wen-Huang Cheng, Shuai Yang) [Room: Gemini 2]
15:00-15:30		
15:30-17:00		
18:00-21:00	**Welcome Reception** [Venue*: Gardens By the Bay (Flower Field Hall and Water View Room)]	

#1 – Coffee break at 10:00-10:30; #2 – Lunch at 12:30-13:30; #3 – Coffee break at 15:00-15:30

* The venue is not located within the conference site. It takes about 20min for driving and 40min for public transportation from the conference site to there.

Program at a Glance

Time: UTC+8	Monday, May 20			
07:45-08:30	**Registration** [Foyer of Taurus Room (Secretariat Room)]			
08:30-09:00	**Opening Ceremony** [Venue: B2 Ballroom]			
09:00-10:00	**Keynote 1:** Aaron Thean, Deputy President (Academic Affairs) and Provost, National University of Singapore, Singapore [Venue: B2 Ballroom]			
10:00-11:00	**Keynote 2:** Gert Cauwenberghs, Professor, Co-Director of the Institute for Neural Computation, University of California San Diego, USA [Venue: B2 Ballroom]			
11:00-11:30	**Coffee Break**			**Poster/Demo** 1. Poster (11 Sessions) 2. Live Demo I [Room: Leo 2, 3, 4]
11:30-13:00	**Regular Sessions** 1. Amplifiers [Room: Aquarius 1] 2. Models & Methods for Non-Linear Circuits & Systems [Room: Aquarius 2] 3. Data Path & Arithmetic Circuits and Systems [Room: Aquarius 3] 4. Hardware Security for IoT, Circuits and Cyber-Physical Systems I [Room: Aquarius 4] 5. Wireline Communications [Room: Gemini 1] 6. Integrated Power Circuits & Charge Pumps [Room: Gemini 2] 7. Neural Interface Circuits & Systems I [Room: Pisces 1] 8. Neural Learning Systems: Optimizations & Applications I [Room: Pisces 2] 9. Learning-based Visual Signal Coding & Processing [Room: Pisces 3]	**Special Sessions** 1. Cross Society Special Session: Flexible Circuits & Systems for the Era of Everything Intelligence [Room: Pisces 4] 2. Inversion Coefficients & Ratio-based (gm/ID, gm/Cg, etc.) Design Methodologies [Room: Virgo 1] 3. Novel Hardware Implementation of Learning Algorithms in Deep & Spiking Neural Networks I [Room: Virgo 2] 4. RFIC & AI: Pioneering New Wireless Communications [Room: Virgo 3]	**Workshop/Other** 1. Student Design Competition [Room: Leo 1]	
13:00-14:00	**Lunch** [Venue: B2 Ballroom]			

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Time: UTC+8	Monday, May 20 (Continue)			
14:00-15:00	**Keynote 3:** Sandro Carrara, Professor, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland [Venue: B2 Ballroom]			
15:00-16:30	**Regular Sessions** 1. LDO Regulators [Room: Aquarius 1] 2. AI & ML Techniques for Non-Linear Circuits & Systems [Room: Aquarius 2] 3. Low Power Logic, Circuits & Architectures I [Room: Aquarius 3] 4. Digital Circuits, Systems & Architecture for Machine Learning I [Room: Aquarius 4] 5. Optical Communications [Room: Gemini 1] 6. Circuits & Systems for Energy Harvesting [Room: Gemini 2] 7. Neural Interface Circuits & Systems II [Room: Pisces 1] 8. Neural Learning Systems: Transformers & Applications I [Room: Pisces 2] 9. Image/Video Coding & Standardization [Room: Pisces 3]	**Special Sessions** 1. Optical & Wireless Communication & Sensing Technologies in Terrestrial & Non-Terrestrial Systems for 6G I [Room: Pisces 4] 2. Innovations in Computational Intelligence: Studies on Structures, Detection, & Optimization [Room: Virgo 1] 3. Novel Hardware Implementation of Learning Algorithms in Deep & Spiking Neural Networks II [Room: Virgo 2] 4. Delta-Sigma ADCs & its AI Application [Room: Virgo 3]	**Workshop/Other** 1. Climate Change Workshop [Room: Leo 1]	N/A
16:30-17:00	**Coffee Break**			**Poster/Demo/ Competition** 1. Poster (4 Sessions) 2. PhD Forum 3. Student Design Competition Demo [Room: Leo 2, 3, 4]
17:00-18:30	**Regular Sessions** 1. Analog Signal Processing I [Room: Aquarius 1] 2. Sigma Delta Modulator for ADC [Room: Aquarius 2] 3. Low Power Logic, Circuits & Architectures II [Room: Aquarius 3] 4. Digital Circuits, Systems & Architecture for Machine Learning II [Room: Aquarius 4] 5. Cryptography & Hardware Security [Room: Gemini 1] 6. Circuits & Systems for Wireless Power Transfer Applications [Room: Gemini 2] 7. Machine Learning & Signal Processing for Biomedical Systems I [Room: Pisces 1] 8. Neural Learning Systems: Techniques & Applications I [Room: Pisces 2] 9. Deep Learning for Visual Signal Representation & Processing [Room: Pisces 3]	**Special Sessions** 1. Optical & Wireless Communication & Sensing Technologies in Terrestrial & Non-Terrestrial Systems for 6G II [Room: Pisces 4] 2. Improving Student Retention & Use of AI/ChatGPT in Engineering Education [Room: Virgo 1] 3. Various Synchronization in Coupled Nonlinear Circuits with Specialized Coupling & Applications [Room: Virgo 2] 4. AI-Based Detection & Estimation for Health & Security Applications [Room: Virgo 3]	**Workshop/Other** 1. Climate Change Workshop [Room: Leo 1]	
18:30-22:00	**WiCAS-YP Event** [Room: Leo 1]			

Program at a Glance

Time: UTC+8	Tuesday, May 21			
07:45-08:30	**Registration** [Foyer of Taurus Room (Secretariat Room)]			
08:30-09:00	**CASS 75th Anniversary** [Room: Leo 1]			
09:00-10:00	**Past President Sharing Panel** [Room: Leo 1]			
10:00-10:30	**Coffee Break**			
10:30-12:00	**Regular Sessions** 1. Fractional N & All Digital PLL [Room: Aquarius 1] 2. ADC/DAC Circuits [Room: Aquarius 2] 3. Advanced Memory & Computing-in-Memory Circuits I [Room: Aquarius 3] 4. Digital Circuits, Systems & Architecture for Machine Learning III [Room: Aquarius 4] 5. Wireless Communications I [Room: Gemini 1] 6. Modelling & Control of Power & Energy Circuits & Systems [Room: Gemini 2] 7. Multimedia Systems for Coding & Processing [Room: Pisces 1] 8. Neuromorphic Spiking Learning Systems & Applications I [Room: Pisces 2]	**Special Sessions** 1. Compact Smart Wearable Devices & Digital Health [Room: Pisces 4] 2. Grand Challenge on Neural Network-based Video Coding [Room: Virgo 1] 3. Trustable & Sustainable Intelligent Circuits & System Design [Room: Virgo 3]	**Workshop/Other** 1. CASS Standards Association Workshop [Room: Virgo 4] 2. Info Security Workshop [Room: Leo 1] 3. ISCAS PhD Forum [Room: Pisces 3] 4. 12th International Workshop on Computational Intelligence for Multimedia Understanding [Room: Virgo 2]	**Poster/Demo** 1. Poster (12 Sessions) 2. Special Live Demo [Room: Leo 2, 3, 4]
12:00-13:00	**Keynote 4:** Huiming Bu, Vice President, IBM Semiconductors Global R&D and Albany Operations, IBM Research, USA [Venue: B2 Ballroom]			
13:00-14:00	**Lunch** [Venue: B2 Ballroom]			

Program at a Glance

Time: UTC+8	Tuesday, May 21 (Continue)			
14:00-15:30	**Regular Sessions** 1. High Frequency PLLs & Oscillators [Room: Aquarius 1] 2. ADC Circuit Techniques [Room: Aquarius 2] 3. Advanced Memory & Computing-in-Memory Circuits II [Room: Aquarius 3] 4. Digital Circuits, Systems & Architecture for Machine Learning IV [Room: Aquarius 4] 5. 6G, IoT Systems & Sensor Networks I [Room: Gemini 1] 6. High-Efficiency Power Converters & Drive Circuits [Room: Gemini 2] 7. Deep Learning in Multimedia Applications [Room: Pisces 1] 8. Neuromorphic Spiking Learning Systems & Applications II [Room: Pisces 2] 9. Signal Processing for Sensor Arrays & Networks [Room: Pisces 3]	**Special Sessions** 1. Emerging Technologies in Neural Prosthetic & Bio-inspired Devices [Room: Pisces 4] 2. Emerging Non-Volatile Devices for Computing [Room: Virgo 1] 3. Technology & Agribusiness [Room: Virgo 2] 4. Physical Hardware Evaluation from Design Trust to System Reliability [Room: Virgo 3]	**Workshop/Other** 1. CASS Standards Association Workshop [Room: Virgo 4] 2. Info Security Workshop [Room: Leo 1]	**Poster/Demo** 1. Poster (11 Sessions) 2. Live Demo II [Room: Leo 2, 3, 4]
15:30-16:00	**Coffee Break**			
16:00-17:00	**Keynote 5:** Michael Tse, Chair Professor of Electrical Engineering and Associate Vice President at City University of Hong Kong, Hong Kong [Venue: B2 Ballroom]			
17:00-17:45	**Award Ceremony** [Venue: B2 Ballroom]			
19:00-22:00	**Gala Dinner** [Venue: B2 Ballroom]			

Program at a Glance

Time: UTC+8	Wednesday, May 22			
07:45-09:00	**Registration** [Foyer of Taurus Room (Secretariat Room)]			
09:00-10:30	**Regular Sessions** 1. Voltage Regulators & Current Reference [Room: Aquarius 1] 2. Memory Circuits & Interconnects [Room: Aquarius 2] 3. SOC, NOC, Multi-Core, & 3D/2.5D Systems [Room: Aquarius 3] 4. Circuit Techniques for Computing-in-Memory & Machine Learning [Room: Aquarius 4] 5. Quantum Computing Circuits & Systems I [Room: Gemini 1] 6. Education in Circuits & Systems I [Room: Gemini 2] 7. Biomedical Circuits & Systems I [Room: Pisces 1] 8. Neuromorphic Systems I [Room: Pisces 2] 9. Image Processing [Room: Pisces 3]	**Special Sessions** 1. Brain Computer Interface: Algorithm & Signal Processing [Room: Pisces 4] 2. Improving the Accuracy & Reliability of Analog-Based In-Memory Computing Systems I [Room: Virgo 1] 3. Smart 6G Wireless Baseband: Design & Implementations [Room: Virgo 2] 4. Efficient Processing of Large Language Models at the Edge [Room: Virgo 3]	**Workshop/Other** 1. AutoCAS Workshop [Room: Leo 1] 2. 3D Integration & Advanced Packaging Workshop [Room: Virgo 4]	N/A
10:30-11:00	**Coffee Break**			**Poster/Demo** 1. Poster (11 Sessions) 2. Live Demo III [Room: Leo 2, 3, 4]
11:00-12:30	**Regular Sessions** 1. Analog Techniques I [Room: Aquarius 1] 2. Voltage Reference Circuits [Room: Aquarius 2] 3. Programmable & Reconfigurable Array Architectures [Room: Aquarius 3] 4. Ultra-low Power Circuits & Systems [Room: Aquarius 4] 5. Advanced CMOS, Cryogenics and 3D Integration [Room: Gemini 1] 6. Dynamic & Event-Driven Vision Sensors [Room: Gemini 2] 7. Biomedical Circuits & Systems II [Room: Pisces 1] 8. Neuromorphic Systems II [Room: Pisces 2] 9. Filter Design, Implementation & Application [Room: Pisces 3]	**Special Sessions** 1. Brain Computer Interface: Hardware & Circuit Design [Room: Pisces 4] 2. Improving the Accuracy & Reliability of Analog-Based In-Memory Computing Systems II [Room: Virgo 1] 3. Recent Progress in Analysis & Estimation of Bifurcation Phenomena [Room: Virgo 2] 4. Ultra-Low-Power ICs Enabling Sensor Nodes Without Batteries [Room: Virgo 3]	**Workshop/Other** 1. AutoCAS Workshop [Room: Leo 1] 2. 3D Integration & Advanced Packaging Workshop [Room: Virgo 4]	
12:30-13:30	**Lunch** [Venue: B2 Ballroom]			

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Time: UTC+8	Wednesday, May 22 (Continue)			
13:30-15:00	**Regular Sessions** 1. Photonics & mm-Wave Circuits [Room: Aquarius 1] 2. RF & mm-Wave Circuits I [Room: Aquarius 2] 3. Hardware Security for Logic, Circuits & Architectures I [Room: Aquarius 3] 4. Advanced Techniques for Digital Integrated Circuits & Systems I [Room: Aquarius 4] 5. Computing with Emergent Technologies II [Room: Gemini 1] 6. Sensory Signals Processing Circuits [Room: Gemini 2] 7. Wearable Biomedical Circuits & Systems I [Room: Pisces 1] 8. Neural Memristive In-Memory Computation Systems [Room: Pisces 2] 9. Machine Learning for Speech & Language Processing [Room: Pisces 3]	**Special Sessions** 1. Intelligent & Data Analytics to Real-Life Complex Networks & Nonlinear Systems I [Room: Pisces 4] 2. Artificial Intelligence in Power & Energy Circuits & Systems I [Room: Virgo 1] 3. Emerging AI-driven Visual Computing & Multimodal Learning for Real-world Applications [Room: Virgo 2] 4. Theory & Applications of Memristor Devices, Circuits, & Systems for Bio-Inspired Electronics I [Room: Virgo 3]	**Workshop/Other** 1. GeronCAS Workshop [Room: Leo 1] 2. 3D Integration & Advanced Packaging Workshop [Room: Virgo 4]	N/A
15:00-15:30	**Coffee Break**			**Poster/Demo** 1. Poster (10 Sessions) [Room: Leo 2, 3, 4]
15:30-17:00	**Regular Sessions** 1. Analog Techniques II [Room: Aquarius 1] 2. Time Interleaved & SAR ADC [Room: Aquarius 2] 3. Hardware Security for Logic, Circuits & Architectures II [Room: Aquarius 3] 4. Electronic Design Automation & Physical Design I [Room: Aquarius 4] 5. Computing with Emergent Technologies I [Room: Gemini 1] 6. 2D/3D Image Sensors [Room: Gemini 2] 7. Lab-on-Chip & Point-of-Care Biomedical Diagnostics [Room: Pisces 1] 8. Biomedical Signal & Image Processing [Room: Pisces 3]	**Special Sessions** 1. Intelligent & Data Analytics to Real-Life Complex Networks & Nonlinear Systems II [Room: Pisces 4] 2. Millimeter-Wave & Sub-THz 5G/6G/SATCOM Broadband Circuits & Systems [Room: Virgo 1]	**Workshop/Other** 1. GeronCAS Workshop [Room: Leo 1] 2. 3D Integration & Advanced Packaging Workshop [Room: Virgo 4]	
18:00-21:00	**Farewell Reception** [Venue: Malaysian Food Street at Resorts World Sentosa]			