



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]

10:00-10:30

2. Advanced Biomedical Imaging Technologies: Circuit Design and Techniques ([Instructor\(s\): Yuanjin Zheng, Yongfu Li, Jian Zhao, Ka-Meng Lei](#)) [Room: Pisces 1]

10:30-12:30

12:30-13:30

13:30-15:00

3. Integrated Devices, Circuits and Systems for Quantum Computing ([Instructor\(s\): Andreas Fuhrer Janett, ChristianENZ, Andrei Vladimirescu, Fabio Sebastiano, Edoardo Charbon, Joseph Bardin, Sorin Voinigescu, Domenico Zito](#)) [Room: Leo 1]

15:00-15:30

15:30-17:00

18:00-21:00

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 Ntinis, Georgios Ch. Sirakoulis](#)) [Room: Gemini 2]

Lunch [Venue: West Lobby, Foyer beside Aquarius 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]

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.



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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
11:30-13:00	<u>Regular Sessions</u> <ol style="list-style-type: none">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]	<u>Special Sessions</u> <ol style="list-style-type: none">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]	<u>Workshop/Other</u> <ol style="list-style-type: none">1. Student Design Competition [Room: Leo 1]	<ol style="list-style-type: none">1. Poster (11 Sessions)2. Live Demo I [Room: Leo 2, 3, 4]
13:00-14:00	Lunch [Venue: B2 Ballroom]			



ISCAS
2024

Program at a Glance

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

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]

Poster/Demo/Competition

1. Poster (4 Sessions)
2. PhD Forum
3. Student Design Competition Demo

[Room: Leo 2, 3, 4]

18:30-22:00

WiCAS-YP Event [Room: Leo 1]



ISCAS
2024

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Time: UTC+8	Tuesday, May 21			
07:45-08:30	Registration [Foyer of Taurus Room (Secretariat Room)]			
08:30-10:00	<u>Regular Sessions</u> <ol style="list-style-type: none">Fractional N & All Digital PLL [Room: Aquarius 1]ADC/DAC Circuits [Room: Aquarius 2]Advanced Memory & Computing-in-Memory Circuits I [Room: Aquarius 3]Digital Circuits, Systems & Architecture for Machine Learning III [Room: Aquarius 4]Wireless Communications I [Room: Gemini 1]Modelling & Control of Power & Energy Circuits & Systems [Room: Gemini 2]Multimedia Systems for Coding & Processing [Room: Pisces 1]Neuromorphic Spiking Learning Systems & Applications I [Room: Pisces 2]	<u>Special Sessions</u> <ol style="list-style-type: none">Compact Smart Wearable Devices & Digital Health [Room: Pisces 4]Grand Challenge on Neural Network-based Video Coding [Room: Virgo 1]Trustable & Sustainable Intelligent Circuits & System Design [Room: Virgo 3]	<u>Workshop/Other</u> <ol style="list-style-type: none">CASS Standards Association Workshop [Room: Virgo 4]Info Security Workshop [Room: Leo 1]ISCAS PhD Forum [Room: Pisces 3]12th International Workshop on Computational Intelligence for Multimedia Understanding [Room: Virgo 2]	<u>Poster/Demo</u> <ol style="list-style-type: none">Poster (12 Sessions) [Room: Leo 2, 3, 4]
10:00-10:30	Coffee Break			
10:30-11:30	Keynote 4: Huiming Bu , Vice President, IBM Semiconductors Global R&D and Albany Operations, IBM Research, USA [Venue: B2 Ballroom]			
11:30-12:30	Keynote 5: Michael Tse , Chair Professor of Electrical Engineering and Associate Vice President at City University of Hong Kong, Hong Kong [Venue: B2 Ballroom]			
12:30-13:30	Lunch [Venue: B2 Ballroom]			



ISCAS
2024

Program at a Glance

Time: UTC+8	Tuesday, May 21 (Continue)			
13:30-14:00	Award Ceremony [Venue: Leo 1]			
14:00-14:30	CASS 75 th Anniversary [Room: B2 Ballroom]			
14:30-15:30	Past President Sharing Panel [Room: Room: B2 Ballroom]			
15:30-16:00	Coffee Break			<u>Poster/Demo</u>
16:00-17:30	<u>Regular Sessions</u> 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]	<u>Special Sessions</u> 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]	<u>Workshop/Other</u> 1. CASS Standards Association Workshop [Room: Virgo 4] 2. Info Security Workshop [Room: Leo 1]	1. Poster (11 Sessions) 2. Live Demo II [Room: Leo 2, 3, 4]
19:00-22:00	Gala Dinner [Venue: B2 Ballroom]			



ISCAS
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Time: UTC+8	Wednesday, May 22			
07:45-09:00	Registration [Foyer of Taurus Room (Secretariat Room)]			
09:00-10:30	<u>Regular Sessions</u> <ol style="list-style-type: none">Voltage Regulators & Current Reference [Room: Aquarius 1]Memory Circuits & Interconnects [Room: Aquarius 2]SOC, NOC, Multi-Core, & 3D/2.5D Systems [Room: Aquarius 3]Circuit Techniques for Computing-in-Memory & Machine Learning [Room: Aquarius 4]Quantum Computing Circuits & Systems I [Room: Gemini 1]Education in Circuits & Systems I [Room: Gemini 2]Biomedical Circuits & Systems I [Room: Pisces 1]Neuromorphic Systems I [Room: Pisces 2]Image Processing [Room: Pisces 3]	<u>Special Sessions</u> <ol style="list-style-type: none">Brain Computer Interface: Algorithm & Signal Processing [Room: Pisces 4]Improving the Accuracy & Reliability of Analog-Based In-Memory Computing Systems I [Room: Virgo 1]Smart 6G Wireless Baseband: Design & Implementations [Room: Virgo 2]Efficient Processing of Large Language Models at the Edge [Room: Virgo 3]	<u>Workshop/Other</u> <ol style="list-style-type: none">AutoCAS Workshop [Room: Leo 1]3D Integration & Advanced Packaging Workshop [Room: Virgo 4]	N/A
10:30-11:00	Coffee Break			
11:00-12:30	<u>Regular Sessions</u> <ol style="list-style-type: none">Analog Techniques I [Room: Aquarius 1]Voltage Reference Circuits [Room: Aquarius 2]Programmable & Reconfigurable Array Architectures [Room: Aquarius 3]Ultra-low Power Circuits & Systems [Room: Aquarius 4]Advanced CMOS, Cryogenics and 3D Integration [Room: Gemini 1]Dynamic & Event-Driven Vision Sensors [Room: Gemini 2]Biomedical Circuits & Systems II [Room: Pisces 1]Neuromorphic Systems II [Room: Pisces 2]Filter Design, Implementation & Application [Room: Pisces 3]	<u>Special Sessions</u> <ol style="list-style-type: none">Brain Computer Interface: Hardware & Circuit Design [Room: Pisces 4]Improving the Accuracy & Reliability of Analog-Based In-Memory Computing Systems II [Room: Virgo 1]Recent Progress in Analysis & Estimation of Bifurcation Phenomena [Room: Virgo 2]Ultra-Low-Power ICs Enabling Sensor Nodes Without Batteries [Room: Virgo 3]	<u>Workshop/Other</u> <ol style="list-style-type: none">AutoCAS Workshop [Room: Leo 1]3D Integration & Advanced Packaging Workshop [Room: Virgo 4]	<u>Poster/Demo</u> <ol style="list-style-type: none">Poster (11 Sessions)Live Demo III [Room: Leo 2, 3, 4]
12:30-13:30	Lunch [Venue: B2 Ballroom]			



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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]

N/A

15:00-15:30

Coffee Break

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]

Poster/Demo

1. Poster (10 Sessions) [Room: Leo 2, 3, 4]

17:00-18:00

Conference Awards & ISCAS 2025 Presentation [Leo 1]

18:30-21:00

Farewell Reception [Venue: Malaysian Food Street at Resorts World Sentosa]