

# DTTIS 2025 Technical Program

**Wednesday, October 15**

## **12.30 – 13.00 Opening session**

*Ioannis VOYIATZIS, Mohamed MASMOUDI, General Chairs*

*Anteneh GEBREGIORGIS, Athanassios MILIDONIS, Program Chairs*

## **13.00 – 14.00 Keynote Talk #1: Dimitrios SOUDRIS**

## **14.00 – 16.00 Regular Session #1 – Design and Technology**

**Fully Inkjet-Printed PEDOT: PSS/ZnO Heterojunctions for Memristive Applications,**

*Apostolos APOSTOLAKIS, Dimitris BARMPAKOS, Grigoris KALTSAS*

***Tailored Substitutional-Vanadium Doping in WSe<sub>2</sub> Crystals for High-performance p-FET Engineering,***

*I-Ling LI, Cheng-Chieh HSIEH, Tsung-Che HSIEH, Hung-Hui YANG, Chan-Yuen CHANG, Chien-Wei CHEN, Chih-Chao YANG, Ying-Hao CHU, Chao-Hui YEH*

**A 4.0 GHz CP-PLL with Programmable Charge Pump and Second to Third-Order LPF-based Design,**

*Raphael Ronald SOUZA, Agord de Matos PINTO*

**Negative Group Delay Predictor Application for CO<sub>2</sub> Gas Concentration in Real Environment Condition,**

*Jonas PELLEGRINO, Hassen AZIZA, Mathieu GUERIN, Taranto PASCAL*

## **16.00 – 16.30 Coffee Break**

## **16.30 – 18.00 Special Session #1 – Design of Efficient and Robust Quantum Machine Learning Systems**

**Quantum Neural Networks: an overview and some recent results**

*Davide Pastorello, University of Bologna*

**Toward Secure and Decentralized Quantum Machine Learning for Financial Fraud Detection**

*Ioannis Theodonis, National Technical University of Athens*

**Trustworthy Quantum Neural Networks: Challenges, Emerging Directions, and Open Questions**

*Muhammad Shafique, New York University (NYU) Abu Dhabi*

# Thursday, October 16

## 09.00 – 10.00 Keynote Talk #2: Matteo SONZA REORDA

## 10.00 – 11.00 Coffee break and Scientific Poster session

### **Mobility enhancement by process optimization for RF SOI switch applications,**

*Robin BOUSMAHA-JOUVE, Pascal MASSON, Julien DURA, Wenceslas RAHAJANDRAIBE, Pascal FORNARA, Rémy VAUCHÉ, Fayrouz HADDAD, Franck JULIEN, Alain FLEURY, Frederic GIANESELLO, Clément CHARBUILLET*

### **On the Test of the Analog-Digital Interface in AMS Integrated Circuits,**

*Iacopo GUGLIELMINETTI, Michelangelo GROSSO, Riccardo CANTORO*

### **Embedded Characterization of MOS Gate-to-Substrate Capacitances Using Ring Oscillators,**

*Paul DEVOGE, Noemie COUZI, Hassen AZIZA, Abderrezak MARZAKI, Alexandre MALHERBE, Franck JULIEN, Arnaud REGNIER, Stephan NIEL*

## 11.00 – 12.30 Regular Session #2 – Integrated Systems Design

### **Accelerating LWE-Based Post-Quantum Cryptography with Approximate Computing,**

*Diamante Simone CRESCENZO, Emanuele VALEA, ALBERTO BOSIO*

### **Hardening Digital CIM-BNN Accelerators Against Side-Channel Attacks,**

*Fouwad MIR, Abdullah ALJUFFRI, Said HAMDIOUI, Mottaqiallah TAOUIL*

### **Towards Proofs for SCA-based Efficient Formal Verification of Complex Arithmetic Circuits,**

*Lennart WEINGARTEN, Kamalika DATTA, Abhoy KOLE, Rolf DRECHSLER*

## 12.30 – 13.30 Lunch

## 13.30 – 15.00 Special Session #2 – Towards Brain-Inspired Intelligence: Challenges and Opportunities in Spiking Neural Networks and Neuromorphic Computing

### **Learning to Spike: Algorithms and Frameworks for Training Spiking Neural Networks**

*Alessio Caviglia, Politecnico di Torino*

### **Digital and Emerging Technologies for Neuromorphic Hardware: From CMOS to Photonics**

*Tzamn Melendez, Politecnico di Torino*

### **Fault Tolerance and Robustness in Spiking Neural Networks for Safety-Critical Systems**

*Enrico Magliano, Politecnico di Torino*

**15.00 – 15.30 Coffee Break**

**15.30 – 16.15 Tutorial – Machine Learning for Smart Agriculture Applications**

*Zoran Stamenkovic, IHP*

**16.30 – 22.00 Social event**

# Friday, October 17

## 09.00 – 10.30 Special Session #3 – Test and Reliability of Analog-Based AI Accelerators

*Moritz Fieback and Hassen Aziza*

## 10.30 – 11.00 Coffee break

## 11.00 – 12.30 Regular Session #3 – Integrated Systems Testing

**GPU Under Pressure: Estimating Application's Stress via Telemetry and Performance Counters,**  
*Giuseppe ESPOSITO, Juan GUERRERO, Josie RODRIGUEZ CONDIA, Matteo SONZA REORDA, Marco BARBIERO, Rossella FORTUNA*

**Performance-aware reliability optimization for digital designs,**  
*Michelangelo BARTOLOMUCCI, Uyen TRAN, Didier ROLAND, David KINGSTON, Alessandra NARDI, Riccardo CANTORO*

**Voltage Scaling for Energy-Efficient and Reliable FPGA Deep Neural Network Acceleration,**  
*Konstantinos ARGYRIOU, Grigorios KARAOGLANIAN, Dimitris AGIAKATSIKAS, Mihalios PSARAKIS*

## 12.30 – 13.30 Lunch

## 13.30 – 15.00 Regular Session #4 – Integrated Systems Design

**Design Space exploration and Optimization of ML algorithms for EEG-base Seizure detection,**  
*Christoforos KACHRIS*

**Evaluating Communication and Architectural Overheads in NTT Accelerators for ML-KEM,**  
*Stefano DI MATTEO, Emanuele VALEA*

**A Complete Synthesis and Verification Approach for MAGIC Based In-Memory Computing,**  
*Lennart WEINGARTEN, Kamalika DATTA, Abhoy KOLE, Ambalapatt MAYA, Nabipour SAEIDEH, Indranil SEN GUPTA, Rolf DRECHSLER*

## 15.00 – 15.30 Conference Closing