Thursday, September 28

09:00   **Registration**

10:00   **Opening Ceremony** *(Chair: Georgios Sirakoulis)*

10:10   **Keynote Speech** *(Chair: Georgios Sirakoulis)*

      Graphene Based Computing
      Sorin Cotofana, *Delft University of Technology*

11:10   **Coffee Break** *(Xenia Hall)*

11:40   **General Session** *(Chairs: Sorin Cotofana, Ioannis Kansizoglou)*

      Enabling Real-time Network Intrusion Detection through Custom Hardware Architecture
      Dimitrios Danopoulos and Dimitrios Soudris

      Interdisciplinary Applications of Non-Integer Order Circuits & Systems
      Julia Nako, Stavroula Kapoulea, Panagiotis Bertsias, Georgia Tsirimokou and Costas Psychalinos

      A 93nW, Analog, Parallel-Connected Threshold Classifier for Epileptic Seizure Prediction
      Vassilis Alimisis, Argyro Kamperi, Nikolaos P. Eleftheriou and Paul P. Sotiriadis

      Design of Approximate DNN Accelerators through Framework-Based and Circuit-Level Techniques
      Vasileios Leon, Sotirios Xydis, George Lentaris and Dimitrios Soudris

      Intelligent Client Selection for Federated Learning using Cellular Automata
      Nikolaos Pavlidis, Vasileios Perifanis, Theodoros Panagiotis Chatzinikolaou, Georgios Ch. Sirakoulis and Pavlos S. Efraimidis

13:20   **Lunch Break** *(Apothiki)*

15:00   **Panel Discussion** *(Chair: Panagiotis Dimitrakis)*

16:00   **Assistive Technologies Special Session** *(Chairs: Georgios Dimitrakopoulos, Dimitrios Menychtas)*

      Action recognition via graph convolutional networks for the assisted living of the elderly
      Zois Tsakiris, Lazaros Tsochatzidis, Dimitrios Menychtas, Nikolaos Aggelousis and Ioannis Pratikakis

      Navigation with care: the ASPiDA assistive robot
      Katerina Maria Oikonomou, Ioannis Tsampikos Papapetros, Ioannis Kansizoglou, Georgios Ch. Sirakoulis and Antonios Gasteratos

16:40   **Coffee Break** *(Xenia Hall)*

17:10   **Assistive Technologies Special Session** *(Chairs: Georgios Dimitrakopoulos, Dimitrios Menychtas)*

      The Case for Asymmetric Systolic Array Floorplanning
      Christodoulos Peltekis, Dionysios Filippas, Giorgos Dimitrakopoulos and Chrysostomos Nicopoulos

      Towards dense indoor environmental sensing with LoraWAN
      Eleftheria Katsiri, Christos Karasoulas and Christoforos Keroglou

      A bio-inspired elderly action recognition system for ambient assisted living
      Katerina Maria Oikonomou, Ioannis Kansizoglou, Ioannis Tsampikos Papapetros and Antonios Gasteratos

A Neuro-Distributed Learning Algorithm for Artificial Neural Networks, Suitable for Distributed Hardware Implementations
Panos Michailidis and Elias Kosmatopoulos

18:30   **Day End**

20:00   **Welcoming Reception** *(Apothiki)*

Friday, September 29

09:00   **Registration**

09:30   **Keynote Speech** *(Chair: Georgios Sirakoulis)*

      Information Processing by Memristor Cellular Nonlinear Networks
      Ronald Tetzlaff, *Technische Universität Dresden*

10:30   **Assistive Technologies Special Session** *(Chairs: Nikolaos Mitianoudis, Nikolaos Aggelousis)*

      Toward real time processing of Radar signals detecting Elderly People Fall
      Dimitrios Arnaoutoglou, Dimitris Dedemadis, Sotirios Katsimentes, Antigone Aikaterini Kyriakou, Athanasios Grekidis, Dimitrios Menychtas Menychtas, Nikolaos Aggelousis, Georgios Sirakoulis and George Kyriacou

      Effects of Exercise on the Center of Mass of Elderly People with a High Risk of Falling
      Dimitrios Menychtas, Evgenia Kouli, Athanasios Gkrekidis, Archontissa Kanavaki, Stefania Pavlidou, Elpiniki Nasiou, Evangelia Abrasi, Georgios Kontogiannis, Eleni Douda, Maria Michalopoulou, Ilias Smilios, Vassilios Gourgoulis, Georgios Ch. Syrakoulis and Nikolaos Aggelousis

11:10   **Coffee Break** *(Xenia Hall)*

11:40   **Assistive Technologies Special Session** *(Chairs: Nikolaos Mitianoudis, Nikolaos Aggelousis)*

      Older adults' views on the use of in-home ambient sensors and assistive robotic agents in Greece. Data from the ASPIDA project
      Archontissa Kanavaki, Maria Michalopoulou, Athanasios Gkrekidis, Evgenia Kouli, Dimitrios Menychtas, Helen Douda, Ilias Smilios, Vassilios Gourgoulis, Georgios Sirakoulis and Nikolaos Aggelousis

      Historical Document Image Binarization using a lightweight U-Net derivative architecture
      Nikolaos Detsikas and Nikolaos Mitianoudis

      Preliminary study on charging patterns dedicated for low power smart mobile devices via modular RF Energy Harvester: iPowerKit
      Alexandros Boubaris, Nick Papanikolaou and Christos Christodoulou

      Contactless Blood Pressure Estimation using infrared video from facial and hand regions
      Thomas Stogiannopoulos and Nikolaos Mitianoudis

      Joint Synergy Index of Elderly People with a High Risk of Falling
      Dimitrios Menychtas, Athanasios Gkrekidis, Georgios Michailidis, Archontissa Kanavaki, Evgenia Kouli, Theodoros Tzelepis, Panagiotis Kasimatis, Konstantinos Astrapellos, Vassilios Gourgoulis, Ilias Smilios, Maria Michalopoulou, Eleni Douda, Georgios Ch. Syrakoulis and Nikolaos Aggelousis

13:20   **Lunch Break** *(Apothiki)*

15:00 **Keynote Speech** *(Chair: Alon Ascoli)*

Analogue Computing with Dynamic Switching Memristor Oscillators: Theory, Devices and Applications
Fernando Corinto, *Politecnico di Torino*

16:00 **General Session** *(Chairs: Christos Papavassiliou, Minas Dasygenis)*

Investigation of Proteinoid Microspheres for Cellular Nanonetworks Based on Frequency Response
Panagiotis Mougkogiannis and Andrew Adamatzky

Stable Diffusion with Continuous-time Neural Networks
András Horváth

16:40 **Coffee Break** *(Xenia Hall)*

17:10 **Memristor and Memristive Symposium Session** *(Chairs: Christos Papavassiliou, Minas Dasygenis)*

Approximate Parallel Annealing Ising Machines (APAIMs): Controller and Arithmetic Designs
Qichao Tao, Tingting Zhang and Jie Han (General Session)

An Algorithmic Approach to the Design of a Comprehensive ReRAM Memory Controller
Jose Cayo and Ioannis Vourkas

Explaining a Recent Observation of Bistability in the Oscillatory Response of a Pulse-Driven ReRAM
Alon Ascoli, Nicolas Schmitt, Ioannis Messaris, Ahmet Samil Demirkol, Stephan Menzel, Vikas Rana, Ronald Tetzlaff and Leon Chua

Performance Analysis of unipolar CBRAM in 1D1R configuration towards IMC under realistic conditions
Ioannis Tompris, Evangelos Tsipas, Iosif-Angelos Fyrigos and Georgios Ch. Sirakoulis

18:30 **Day End**

20:00 **CNNA 2023 Banquet** *(Palaia Polis)*

Saturday, September 30

09:00 **Registration**

09:30 **Keynote Speech** *(Chair: Panagiotis Dimitrakis)*

Progress in Memristor Array Instrumentation
Christos Papavassiliou, *Imperial College London*

10:30 **Memristor and Memristive Symposium Session** *(Chairs: Fernando Corinto, Alon Ascoli)*

Variability Reduction with Bilayer RRAM Device
Tim Kempen, Ankit Bende, Alexandros Sarantopoulos, Regina Dittmann, Christopher Bengel, André Zambanini, Dennis Nielinger, Stephan Menzel and Vikas Rana

On the Design of Oscillatory Circuits Based on Stanford Memristor Model
Mauro Di Marco, Mauro Forti, Luca Pancioni, Giacomo Innocenti and Alberto Tesi

11:10 **Coffee Break** *(Xenia Hall)*

11:40 **Memristor and Memristive Symposium Session** *(Chairs: Fernando Corinto, Alon Ascoli)*

Memristor Applications: Nanodevices Redefining Technological Landscapes
Nikolaos Vasileiadis, Georgios Ch. Sirakoulis and Panagiotis Dimitrakis

Implementation of Reservoir Computers using Simulated Electrostatically Linked Systems
Stavros Stavrinides, Panagiotis Tzounakis, Carol de Benito, Christos Tjortjis, Mohamad Moner Al Chawa, Ioannis Antoniou and Rodrigo Picos

Antenna based classification of posture positions using 1T1M crossbar arrays
Elizabeth George, Aswani Radhakrishnan and Alex James

Analog Unidirectional Memristive and Memcapacitive Device for Neuromorphic Computing
Muhammad Umair Khan, Yawar Abbas and Baker Mohammad

Enhancing the A* Algorithm for Efficient Route Planning of Agriculture
Antonios Chatzisavvas, Malamati Louta and Minas Dasygenis (General Session)

13:20 **Lunch Break** *(Apothiki)*

15:00 **Keynote Speech** *(Chair: Fernando Corinto)*

On the Mechanisms at the Origin of the All-or-None Phenomenon in Biological Neurons
Alon Ascoli, *Technische Universität Dresden*

16:00 **Memristor and Memristive Symposium Session** *(Chairs: Ioannis Vourkas, Vasileios Ntinas)*

LTSPICE Memristor Neuron with MOS Transistor-Based Logarithmic-Sigmoidal Activation Function
Valeri Mladenov, Georgi Tsenov and Stoyan Kirilov

Employing Vector Field Techniques on the Analysis of Memristor Cellular Nonlinear Networks Cell Dynamics
Chandan Singh, Vasileios Ntinas, Dimitrios Prousalis, Yongmin Wang, Ahmet Samil Demirkol, Ioannis Messaris, Vikas Rana, Stephan Menzel, Alon Ascoli and Ronald Tetzlaff

16:40 **Coffee Break** *(Xenia Hall)*

17:10 **Memristor and Memristive Symposium Session** *(Chairs: Ioannis Vourkas, Vasileios Ntinas)*

Memristive Stochastic Binary Neurons for Solving Optimisation Problems
Adil Malik and Christos Papavassiliou

Trading Parallelism for Resources in the FPGA Implementation of Cellular Automata-based Models
Kevin Pizarro, Miguel Andrade and Ioannis Vourkas

A Memristive Neuromorphic Voltage-to-Frequency Mapping Oscillator for Automotive Applications
Ioannis Chatzipaschalis, Theodoros Panagiotis Chatzinikolaou, Iosif-Angelos Fyrigos, Antonio Rubio and Georgios Sirakoulis

18:10 **Closing Ceremony** *(Chair: Georgios Sirakoulis)*

18:20 **Day End**