CALL for PAPERS

Memristive Circuits and Systems for Edge-Computing Applications

Guest editors (*Alphabetical Order*)

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Scope and purpose

Over the past few years, the field of circuits and systems has witnessed significant changes, which have inevitably accompanied the progressive approach of CMOS technology scaling toward atomic boundaries, signaling the end of Moore's era. Tremendous efforts are being made in search for novel materials toward the development of disruptive nanotechnologies, enabling the fabrication of multi-purpose devices. In this regard, memristors, exhibiting the extraordinary capability to combine, within a single tiny three- dimensional space, data sensing, processing, and storage functionalities, offer innovative CMOS- compatible nanotechnologies, allowing to improve the performance of state-of-the-art computing machines.

This special issue will present the latest developments in the multi-disciplinary field of memristors, with particular emphasis on the most recent advancements in edge-computing applications, where exploitating the versatile capabilities of memristors is expected to boost the time and energy efficiency of the data management flow. All in all, the proposed memristor-centered scientific forum will host contributions from outstanding international experimentalists and theoreticians, providing a unique opportunity to exchange ideas, share knowledge, identify open issues, and propose future research directions across a wide number of distinct fields, from material science, to device physics, from nonlinear circuit and system theory, to environmental and bio-sensing, memory, and computing applications, encompassing computer architecture development, and neuromorphic engineering as well.

Finally, this special Issue offers a **fresh look** at the tremendous perspectives that memristor nanodevices bring to light. They come from a variety of different angles, ranging from material engineering and novel modeling aspects to in-memory computing, new signal processing paradigms and beyond von Neumann computing by introducing unconventional and neuromorphic computing.

Submission Procedure

Prospective authors are invited to submit their papers following the instructions provided on the JETCAS website: https://mc.manuscriptcentral.com/jetcas. The submitted manuscripts should not

have been previously published nor should they be currently under consideration for publication elsewhere.

Topics of interest

Topics of interest to this special issue include, but are not limited to, contributions concerning almost every memristive technologies targeting for edge computing applications. More specifically, these may include, but not limited to the following:

- Memristive devices and circuits for in-memory computing
- Memristive devices and circuits for near memory computing
- Memristive devices and circuits for the development and fabrication of novel memories architectures for emergent computing
- Memrisive devices and circuits for non-volatile memories
- Memristive devices, circuits and systems integration with CMOS
- Memristor based hardware accelerators and computing architectures
- CNNs memristive circuits and systems for edge computing
- Memristive technologies and circuits for neuromorphic computing
- Memristive circuits and systems for data sensing and processing
- Memristive circuits for deep learning neural networks
- Design methodologies, and circuit implementations of memristive edge computing
- Emerging paradigms using novel memristive computational approaches
- Unconventional biologically inspired memristive circuits and systems
- Memristor based wave computing circuits and systems

Important dates

- Manuscript submissions due   2022-05-01
- First round of reviews completed   2022-07-01
- Revised manuscripts due   2022-08-15
- Second round of reviews completed   2022-10-10
- Final manuscripts due   2022-11-01
- Target publication date: 2022-12-31

Request for information

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