

IEEE Transactions on VLSI Systems

Call for papers

Special issue on: Memristive device based computing: Circuit and Architecture Design, Automation and Computing.

Submission deadline: July 31, 2017

The IEEE Transactions on VLSI Systems is published as a monthly journal under the co-sponsorship of the IEEE Circuits and Systems Society, the IEEE Computer Society, and the IEEE Solid-State Circuits Society. This special issue is about different aspects of memristive device based computing, including circuit design, architecture, automation and applications.

Today's and emerging applications are extremely demanding in terms of storage and computing power; data-intensive/big-data applications and internet-of-things (IoT) are couple of examples. They will not only impact all aspects of our life, but also change a lot the IC and computer world. Emerging applications require computing power, but with constraints on size, power consumption and guaranteed response time that are typical of the embedded applications. On the other hand, today's computer architectures and device technologies are facing major challenges making them incapable to deliver the required functionalities and features. In order for computing systems to continue deliver sustainable benefits for the foreseeable future society, *alternative computing architectures* and notions have to be explored in the light of *emerging new device technologies*, such as memristive devices.

This special issue aims to present novel solutions for any aspect related to memristive based computing, for example logic and circuit design, architecture, design automation, applications, etc.

Suitable topics (but not limited to) include:

- *Novel logic and circuit design concepts using resistive devices*: memristive-based logic, memristive-based circuits, multi-level based logics, resistive memories, etc.
- *System architectures and new computing paradigms*: resistive computing, in-memory-computing, neuro-inspired computing, novel architectures and CMOS integration, cellular automata and array computing, etc.
- *Applications exploiting memristive devices*: signal processing, chaos and complex networks, sensory applications.
- *Automation and CAD tools for memristive circuits*: mapping tools, compilers, logic synthesis tools, design space exploration tools, etc.

Manuscripts should conform to technical requirements of the Transactions on VLSI – they should be unpublished and original. Submissions that are extensions of previously published conference papers should have at least 30% in terms of new content excluding introduction and review of literature. Papers outside the scope of the special section will be moved automatically to regular section. In addition, papers that are in conflict of interest with the guest editors will also be moved automatically to regular section.

Guest Editors:

- Dietmar Fey, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany, (dietmar.fey@fau.de)
- Pierre - Emmanuel GAILLARDON, University of Utah (pierre-emmanuel.gaillardon@utah.edu)
- Tajana Simunic Rosing, University of California, San Diego (tajana@ucsd.edu)
- Said Hamdioui, Delft University of Technology (S.Hamdioui@tudelft.nl)

Submission Details:

All manuscripts must be submitted through the TVLSI ScholarOne site
<https://mc.manuscriptcentral.com/tvlsi-ieee>.

Once you start the submission process in your Author Centre, make sure to do the following:

1. Step 1/Type: Make sure to choose “Special Section”
1. Step 5/Special Section: Choose “Memristive computing” in the dropdown menu

Failure to choose both options will result in your manuscript being processed in the general pool

For more information on IEEE Transactions on VLSI Systems, please visit the following website:
<http://tvlsi.egr.duke.edu/>

Important Dates

- Submission deadline: July 31, 2017
- Author notification: October 15, 2017
- Second round check: December 31, 2017
- Final manuscript: January 31, 2018