Emerging technologies and computing paradigms for the Internet of Everything applications

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1 | AIMS AND SCOPE

Emerging Internet of Everything (IoE) applications and Artificial Intelligence (AI) require computing platforms to extract task-relevant information from increasingly large amounts of data. But these requirements place stringent constraints on energy efficiency, performance, cost, and reliability. Traditionally, silicon CMOS scaling has been relied upon to meet these energy and delay constraints. However, the energy and delay benefits achievable via scaling are diminishing. Therefore, there is an urge to explore new energy-efficient devices and interconnects as the building blocks for energy efficient systems. Moreover, we need to rethink how architectures and systems are designed to optimize power, performance, and reliability. This will require to investigate novel devices beyond CMOS and novel computing paradigms beyond Von-Neumman to achieve a remarkable improvement in performance, cost, reliability, and energy efficiency.

This special issue aims to bring together contributions focusing on different topics related to the design of circuits and systems using emerging technologies, as well as to highlight the latest advances in novel computing paradigms. The topics of interest include, but not limited to,

- Low-power devices and circuits based on beyond CMOS devices, ie, steep-slope devices, negative capacitance, 1D/2D material devices, metal–insulator-transition devices, etc, for IoE applications.
- Emerging memory devices and circuits, ie, spintronic, resistive, ferroelectric, etc, for IoE applications.
- Energy efficient novel computing paradigm beyond Von-Neumann, ie, memory-centric computing, reversible computing, neuromorphic computing, and quantum computing.
- Device/circuit/architecture codesign methods and novel perspectives.
- Benchmarking of novel devices and computing paradigms.

2 | SUBMISSION

Authors from academia and industry working in the above or closely related research areas are requested to submit original manuscripts that have not been published previously and are not currently under review in other journals or conferences. All manuscripts must be electronically submitted through IJCTA Manuscript Central Website, https://mc.manuscriptcentral.com/ijcta. Indicate that you are submitting your article to the special issue on "Emerging Technologies and Novel Computing Paradigms for the Internet of Everything Applications." Please visit IJCTA website for detailed author guidelines: https://onlinelibrary.wiley.com/page/journal/1097007x/homepage/ForAuthors.html.

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