

CALL FOR PAPERS

ACM Journal on Emerging Technologies in Computing

Providing Research and Development in Emerging Technologies in Computing Systems

Editor-in-Chief

Ramesh Karri, NYU Tandon School of Engineering, Polytechnic Institute of New York University, USA

ACM Journal on Emerging Technologies in Computing (JETC) invites submissions of original technical papers describing research and development in emerging technologies in computing systems. Major economic and technical challenges are expected to impede the continued scaling of semiconductor devices. This has resulted in the search for alternate mechanical, biological/biochemical, nanoscale electronic, asynchronous and quantum computing and sensor technologies. As the underlying nanotechnologies continue to evolve in the labs of chemists, physicists, and biologists, it has become imperative for computer scientists and engineers to translate the potential of the basic building blocks (analogous to the transistor) emerging from these labs into information systems. Their design will face multiple challenges ranging from the inherent (un)reliability due to the self-assembly nature of the fabrication processes for nanotechnologies, from the complexity due to the sheer volume of nanodevices that will have to be integrated for complex functionality, and from the need to integrate these new nanotechnologies with silicon devices in the same system.

The journal provides comprehensive coverage of innovative work in the specification, design analysis, simulation, verification, testing, and evaluation of computing systems constructed out of emerging technologies and advanced semiconductors. Topics include, but are not limited to:

Logic Primitive Design and Synthesis

how to design computational logic primitives from the new nanotechnologies and design tools supporting their effective design and verification

System-Level Specification, Design and Synthesis

how to interconnect these computational primitives to build complete information systems, and design tools for specifying, synthesizing, and verifying such systems

Software-Level Specification, Design and Synthesis

how to develop the necessary software so that applications can be effectively mapped onto information systems implemented using these new nanotechnologies, and tools for generating and verifying the software

Mixed-Technology Systems

how to interface across potentially hybrid nanotechnologies that may co-exist in the same information system

Interactions of Emerging Technologies and Applications

how to develop software/hardware for emerging technologies/applications such as neuromorphic computing and machine learning, system security/privacy, etc.



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