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Software, Hardware and Applications for Neuromorphic Computing
IEEE Transactions on Computers Special Issue/Section

IEEE Transactions on Computers seeks original manuscripts for a special issue/section on **Neuromorphic Computing Technologies** scheduled to appear in **July 2022**.

Inspired by biological neural systems, neuromorphic computing has drawn much attention for its great potential of achieving machine intelligence at extremely low energy dissipation. Bio-inspired computing models have been investigated for information encoding, sparse representation, event driven communication/computation, and online learning. This new computing paradigm triggered a recent wave of innovations in software and hardware architecture and emerging device technology, which consequently enabled many novel applications. This is an exemplar of research area where the application, computing model, architecture and circuit level design are closely coupled to deliver unprecedented functionality and energy efficiency. This special issue of IEEE Transactions on Computers will explore academic and industrial research on all topics related to neuromorphic computing, from computing model, software and hardware architecture to application design.

Topics of interest to this special issue include, but not limited to:
- Network, neuron and synapse models of bio-inspired and spiking neural networks
- Non-von Neumann computing architectures
- Emerging devices and hardware implementations
- Supervised or unsupervised learning in neuromorphic computing systems
- Biologically-inspired network structure and computing models
- Applications where neuromorphic system have the potential to outperform state-of-the-art techniques
- Online learning and real-time applications of neuromorphic systems
- Application, computing model, and hardware architecture co-design for neuromorphic systems

Submitted papers must include new significant research-based technical contributions in the scope of the journal. Papers under review elsewhere are not acceptable for submission. Extended versions of published conference papers (to be included as part of the submission together with a summary of differences) are welcome, but there must have at least 30% new impacting technical/scientific material in the submitted journal version and there should be less than 50% verbatim similarity level as reported by a tool (such as CrossRef). Guidelines concerning the submission process and LaTeX and Word templates can be found at https://www.computer.org/csdl/journal/tc/write-for-us/15066?title=Author Information&periodical=IEEE Transactions on Computers. While submitting through ScholarOne, at https://mc.manuscriptcentral.com/tc-cs, please select this special issue/section option. As per *TC* policies, only full-length papers (12 pages) can be submitted to special issues/sections and each author's bio should not exceed 150 words.

Please note the following important dates.

• **Submission Deadline**: October 15, 2021
(submission site will be open 2 weeks before the deadline)
• **Reviews Completed**: December 15, 2021
• **Major Revisions Due**: February 1st, 2022
• **Reviews of Revisions Completed**: March 15, 2022
• **Notification of Final Acceptance**: April 15, 2022
• **Publication Materials for Final Manuscripts Due**: May 1st, 2022
• **Publication**: July 1st, 2022

Questions?
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