



IETE Journal of Research Supplement Issue on

Machine Learning for Energy Efficient Electronic Circuits and Computing Systems

<https://www.tandfonline.com/toc/tijr20/current>

Today, the Internet of Things (IoT) has been one of the most popular technologies that facilitate new interactions among things and humans to enhance the quality of Electronic Circuits and computing Systems. With the rapid development of IoT systems and intelligent Electronic Circuits, energy efficient computing paradigm is emerging as an attractive solution for processing the data of IoT devices. In this procedure, data transmission is performed by IoT devices based on the intermediate computing nodes, as well as the physical servers in cloud data centers. On the other hand, due to the energy saving limitations, service heterogeneity, dynamic nature, and unpredictability of IoT environment, machine learning methods can enhance accuracy and performance of IoT infrastructure aspects to predict energy consumption and power generation in electronic circuits and computing systems. Due to above mentioned critical points, the energy-aware data transmission, load balancing, routing, service selection and composition issues can be introduced as main challenging problems to be considered in the IoT environments. Despite the importance of energy efficient electronic circuits and computing systems issues, this special issue invites researchers to publish selected original letters presenting intelligent trends to solve new challenges of intelligent services and system management problems. We also are interested in review articles as the state-of-the-art of this topic, showing recent major advances and discoveries, significant gaps in the research and new future issues.

Topics are as below but are not limited to:

Methodologies, and Techniques

- New methods for artificial neural networks and MLP techniques
- New learning methods for established intelligent architectures
- Classification methods for non-established models (SVM, fuzzy models, deep clustering techniques, ...)
- Complexity reduction in and transformation of deep learning models
- Interpretability aspects for a better understanding of machine learning models
- Reasoning of input-output behavior of machine learning models (toward understanding their predictions)
- Deep learning classifiers combined with active learning
- Evolutionary-based optimization
- Hybrid learning schemes (deterministic with heuristics-based, mimetic)
- Incremental learning methods for self-adaptive deep learning models
- Evolving techniques for deep learning systems (expanding and pruning layers, components etc. on the fly)
- Transfer learning for deep learning systems

Applications

- Energy-aware Communication Theory and Network Management in IoT
- Energy efficiency on Microwave, Radio and Terahertz Circuits, Systems and Devices
- Energy consumption on Embedded and CMOS Integrated Circuit Systems
- Energy-aware Service offloading and placement in IoT devices
- Energy efficiency on Medical Instrumentation and Healthcare Technologies in IoT

- New energy harvesting approaches on Cognitive Radio and Wireless Networks
- Service negotiation and communication for vehicular networks in IoT
- Sensor-based energy efficiency management in IoT Agriculture
- Energy management on Industrial services in IoT

Important Dates:

Deadline for submissions: 10 July, 2021

Final Decision: 10 October, 2021

Tentative Publication Date: Q4, 2021

Submission information:

All manuscripts should follow the author instructions of *IETE Journal of Research* at <https://www.tandfonline.com/toc/tijr20/current> and be submitted online at ScholarOneManuscripts™ submission site: <https://mc.manuscriptcentral.com/tijr>. During the submission, please indicate that your manuscript is for the special Open Access issue entitled, **Machine Learning for Energy Efficient Electronic Circuits and Computing Systems**. The authors would be asked for this information in step one of the submission form. As this issue is to be published Open Access, there will be an Article Publishing Charge (APC) for each accepted special issue article. The APC will be 1,350 US dollars.

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