Call for Papers
IEEE Internet of Things Journal Special Issue on
Large Model-Driven Intelligent Computing Optimization in the Artificial Intelligence of Things (AIoT)

In the development of the Artificial Intelligence of Things (AIoT), integrating large-model-driven intelligent computing optimization techniques—including model compression, task offloading, federated learning, neural architecture search, and hardware-aware deployment—has become a key enabler for building intelligent, adaptive, and real-time AIoT systems. These techniques enable efficient deployment of foundation models and large language models (LLMs) across heterogeneous and resource-constrained edge and fog infrastructures, thereby significantly reducing energy consumption, communication overhead, and system latency.

However, deploying large AI models in distributed and dynamically changing IoT environments also introduces a broad range of challenges, including privacy and security risks, limited computational resources, performance bottlenecks, and scalability constraints. Edge devices typically operate under strict power and memory budgets, yet are still expected to deliver accurate and low-latency inference. Moreover, ensuring the trustworthiness, explainability, and robustness of large models in real-world AIoT applications remains an unresolved concern. This special issue focuses on large-scale model deployment and intelligent computing optimization for next-generation AIoT systems, emphasizing scalable integration of pretrained models, privacy-preserving learning, system-level optimization, and context-aware adaptation. By advancing efficient inference, secure federated learning, dynamic task coordination, and cross-layer co-design, this special issue aims to address key challenges in deploying large models in resource-constrained and heterogeneous IoT environments. We welcome original research and practical innovations that bridge intelligent algorithm design with system implementation to enable efficient, secure, and trustworthy large-model-driven AIoT computing. Thus, topics of interest include, but are not limited to:

- Real-time inference optimization algorithms for large models in edge IoT systems
- Compression, quantization, and pruning techniques for large models in AIoT
- Task scheduling and resource allocation optimization for large models in end-edge-cloud architectures
- Federated learning and distributed training mechanisms in heterogeneous AIoT environments
- Neural architecture search (NAS) methods for large model deployment at the edge
- Energy-aware AI acceleration and hardware-software co-design for large models in embedded systems
- Adaptive computing frameworks for context-aware large model execution
- Security and privacy-preserving optimization strategies in AIoT scenarios
- Performance evaluation and benchmarking methodologies for large model deployment and optimization in AIoT systems

Important Dates
- Submissions Deadline: June 15th, 2026
- First Reviews Due: July 30th, 2026
- Revision Due: Nov. September 30th, 2026
- Second Reviews Due/Notification: November 15th, 2026
- Final Manuscript Due: December 31st, 2026
- Publication Date: February 2027

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The original manuscripts to be submitted need to follow the guidelines described at: https://ieee-iotj.org/wp-content/uploads/2025/02/IEEE-IoTJ-Author-Guidelines.pdf, which should not be concurrently submitted for publication in other venues. Authors should submit their manuscripts through the IEEE Manuscript Central at: https://ieee.atyponrex.com/journal/iot. The authors must select as "Special Issue on Large Model-Driven Intelligent Computing Optimization in the Artificial Intelligence of Things (AIoT)" when they reach the "Article Type" step in the submission process.