Intelligence Computing for Big Data Processing

Distributed intelligent computing, also known as edge computing, is a form of computing that pushes computing tasks from the cloud to the edge of the network, and realizes real-time big data processing and distributed computing. In distributed intelligent computing, devices or terminals near the data source have the computing power to process some or all of the computing tasks locally without transferring data to the cloud. This computing mode has the advantages of low latency, high bandwidth, and high privacy protection, which provides a better solution for many real-time applications. The main technical principle of distributed intelligent computing is to decompose the computing task into multiple subtasks and assign these subtasks to each edge node for distributed computing. An edge node can be a peer node or a gateway or server with strong computing capabilities. Through this distributed computing approach, edge computing can improve computing efficiency and response speed, while reducing the burden of data processing in the cloud. In the fields of intelligent manufacturing, intelligent transportation, smart home, medical health, smart city and other practical applications, distributed intelligent computing can achieve intelligent management, resource optimization and security.

We look forward to see more in-depth research and technological breakthroughs on distributed intelligent computing to promote the digital transformation and intelligent development of society. In the future, distributed intelligent computing will be further integrated with artificial intelligence, cloud computing and other technologies to form a more intelligent, efficient and secure computing model. At the same time, with the popularity of Internet of Things devices and the rapid growth of data, how to solve the problem of data privacy protection and transmission bandwidth will also become one of the challenges of distributed intelligent computing.

The purpose of this special session on Intelligence Computing for Big Data Processing is to constantly explore new technologies and algorithms to meet the future development needs of distributed intelligent computing, and solicit the latest research findings and novel contributions from both academic and industry researchers on real-time data processing and automated control in intelligent manufacturing field..

This is a special session of the 22nd IEEE International Symposium on Parallel and Distributed Processing with Applications (https://www.ieee-ispa.org/2024/ispa/). Please submit your paper via the submission site (Coming soon) and select the special session of "Intelligence Computing for Big Data Processing" marked with "ISPAICBDP".

Accepted conference papers will be published by IEEE (IEEE-DL and EI indexed). Selected papers, after further extensions and revisions, will be recommended to journal special issues. More details at the conference website: https://www.ieee-ispa.org/2024/ispa/

Potential topics include but are not limited to:
1. Distributed intelligent computing for big data cleaning, mining, etc.
2. Distributed intelligent computing based multimodal platforms, systems, and architecture
3. Distributed intelligent computing for data-driven decision support systems

4. Distributed intelligent computing for data-driven internet of things
5. Distributed intelligent computing for data-driven intelligent manufacturing/transportation/home/healthcare
6. Distributed intelligent computing for emerging applications, e.g., Digital Twins
7. Distributed intelligent computing for data security and privacy in big data systems
8. Effective optimization approaches for distributed intelligent computing systems
9. Trust, security, privacy, and fairness in distributed intelligent computing systems

Session Chairs:

Ming Tao, Dongguan University of Technology
Henry Dai, Hong Kong Baptist University

Important Dates

Paper Submission Due: July 01, 2024
Acceptance Notification Due: August 01, 2024
Final Manuscript Due: October 01, 2024