

# Tentative Outline

## Special Thematic Issue for the journal *Recent Advances in Computer Science and Communications*

### Title of the Thematic Issue: “Big Data Mining and Computational Cybernetics for Intelligent Decision Making”

*Guest Editors: Dr. S. Sathees kumaran, Dr. Yu-Dong Zhang and Dr. Danilo Pelusi*

**Scope of the Thematic Issue:** Big data may comprise both structured and unstructured data in high volume. Big data mining extracts useful information from collected data for improved decision making. Recently, cybernetics has gained huge attention among researchers because it is capable of studying many complex real-world problems. Computational intelligence is utilized to find solutions to complex problems by applying neural networks, fuzzy logic, evolutionary computing, etc.. Computational cybernetics integrates computational intelligence and cybernetics and finds applications in the areas of signal processing, information technology, robotics, and automation. Machine learning, deep learning, and reinforcement learning can be utilized in computational cybernetics for developing and optimizing many potential applications. Intelligent decision support systems revolutionize big data analytics for improving decision making in industrial IoT, robotics, and automation applications. Smart sensors and measurement systems require intelligent decision-making capabilities in the era of the internet of things.

Automation techniques have been widely utilized for the past three decades in many industries for product assembly, quality inspection, and handling hefty equipment to reduce the burden of human work. Conventional decision-making technologies based on mathematical modeling underperform in many situations. Hence, artificial intelligence-based automation solutions are highly required in the design optimization of industrial IoT applications. The special issue focuses on the trends, opportunities, and challenges of applying computational cybernetics for intelligent decision-making and design optimization. Proposed submissions should be original, unpublished, and present novel in-depth fundamental research contributions either from a methodological perspective or from an application point of view.

**Keywords:** Big data analytics, cybernetics, Intelligent systems, Data mining, Decision support systems, Machine learning, Automation

#### Sub-topics:

- Intelligent decision making in complex systems
- Big data mining and computational cybernetics
- Fuzzy logic for computational cybernetics
- Deep learning and reinforcement learning for computational cybernetics
- Decision support systems in Internet of Intelligent Things

- Big data mining and analytics for automation
- Learning approaches for robotics and automation
- Big data mining for smart manufacturing and development
- Human-Robot interaction
- Intelligent sensing techniques
- Big data analytics for robots and autonomous vehicles
- Analysis of mobile cloud networking and computing
- Security analysis in ad hoc networks and ubiquitous networks
- Energy-efficient designs for autonomous systems

### **Tentative titles of the articles:**

- Industrial big data for manufacturing
- Data Mining Technologies Application at Road Transport
- Use of big data technology in VANETs
- Wireless sensor networks for big data systems
- Cybernetics to brain theory
- Reinforcement learning control of autonomous systems
- Predictive Congestion Control for Vehicular Ad hoc Networks
- Intelligent modeling to improve privacy and security
- Data integrity attacks
- Digital Twins for training autonomous cars
- Intelligent Cognitive-Inspired Computing
- Big data for adaptive intelligent autonomous system

### **Schedule:**

- ✧ Paper submission: February 28, 2023
- ✧ Review results to authors: March, 31, 2023
- ✧ Revised paper submission: April 30, 2023
- ✧ Final acceptance notification: June 30, 2023

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