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Special Issue on Network Intelligence

Network Intelligence considers the embedding of Artificial Intelligence (AI) in future networks to fasten service delivery and operations, leverage Quality of Experience (QoE) and guarantee service availability, also allowing better agility, resiliency, faster customization and security. This concept inherits the solid background of autonomic networking, cognitive management, and artificial intelligence. It is envisioned as mandatory to manage, pilot and operate the forthcoming network built upon SDN, NFV and cloud.

The main goal of this special issue is to present state-of-the-art research results and experience reports in the area of network intelligence, addressing topics such as artificial intelligence techniques and models for network and service management; smart service orchestration and delivery, dynamic Service Function Chaining, Intent and policy based management, centralized vs. distributed control of SDN/NFV based networks, analytics and big data approaches, knowledge creation and decision making.

The attention is particularly focused on the particular application of machine learning tools to the optimization of next generation networks. Machine and deep learning techniques become increasingly popular and achieve remarkable success nowadays in many application domains, e.g., speech recognition, bioinformatics and computer vision. Machine learning is capable to exploit the hidden relationship from voluminous input data to complicated system outputs, especially for some advanced techniques, like the deep learning. Moreover, some other techniques, e.g., reinforcement learning, could further adapt the learning results in the new environments to evolve automatically. These features perfectly match the complex, dynamic and time-varying nature of today's networking systems.

This special issue will be devoted to both theoretical and practical evaluations related to the design, analysis and implementation of network intelligent techniques. Some of the relevant topics include, but are not limited to the following:

- Deep and Reinforcement learning for networking and communications in networks
- Data mining and big data analytics in networking
- Design and optimization in intelligent networks
- Adaptive networking algorithms
- Intent & Policy-based management for intelligent networks
- Innovative architectures and infrastructures for intelligent networks
- AI/ML for network management and orchestration
- AI/ML for network slicing optimization
- AI/ML for service placement and dynamic Service Function Chaining
- AI/ML for C-RAN resource management and medium access control
- Decision making mechanisms

- Routing optimization based on flow prediction network systems
- Data analytics for network and wireless measurements mining
- Methodologies for network problem diagnosis, anomaly detection and prediction
- Network Security based on AI/ML techniques
- AI/ML for multimedia networking
- AI/ML support for ultra-low latency applications
- AI/ML for IoT
- Open-source networking optimization tools for AI/ML applications
- Experiences and best-practices using machine learning in operational networks
- Novel context-aware, emotion-aware networking services
- Machine learning for user behavior prediction
- Modeling and performance evaluation for Intelligent Network
- Transfer learning and reinforcement learning for network management
- Intelligent network management
- Fault-tolerant network protocols using machine learning
- Big data analysis for network monitoring

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Submission Guidelines

Please visit https://www.evise.com/profile/#/COMCOM/login to submit your manuscript. To ensure that all manuscripts are correctly identified for inclusion into the special issue, please select "SI: NI" when you reach the Article Type step in the submission process. For further information, please contact the guest editors.