

## Special Issue on Machine Learning for Communication Performance Enhancement

# CALL FOR PAPERS

Along with the fast development of mobile communication technologies, a large number of high-quality wireless services are required. According to the report of Cisco VNI Global Mobile Data Traffic Forecast 2017, global mobile data traffic will increase nearly sevenfold between 2016 and 2021, and mobile network connection speeds will increase threefold by 2021. There is a big gap between the future requirements of wireless services and current communications technologies, even using 4G/5G technique. How to design intelligent algorithms/schemes to make full use of the limited wireless resources is the theme of this special issue. As an important discipline, machine learning includes pattern recognition and computational learning theory in artificial intelligence and algorithms to learn from the past and make predictions in complicated scenarios. It can be used to analyze the previous/current radio situations and communication paradigms in wireless communications, such as spectrum utilization, channel capacity, power level, antenna configurations, and heterogeneous link properties, and help to generate an optimal action to improve the quality of service (QoS).

Recently, some machine learning algorithms have been proposed for wireless sensor networks, cognitive radio networks, bioinspired networks, machine-to-machine communications, MIMO link adaption, antenna selection, congestion control, and so forth. Machine learning has been one of the most active research fields due to its great success in a wide range of domains. However, its impact on wireless communications has so far been very limited, even though the potential of machine learning in building state-of-the-art communication systems is broad. The main challenge is how to formulate the problems in communication systems as a proper machine learning model.

This special issue welcomes high-quality, original research papers describing the challenges or discoveries in terms of applying intelligent schemes based on machine learning for future wireless communications and networks. Both theoretical and experimental papers are welcome. It is expected that the papers of the special issue will serve as valuable references for a large audience from academia and industry. Both original, unpublished contributions and review nature articles will be considered.

Potential topics include but are not limited to the following:

- ▶ Cloud-based and fog-based communications with machine learning schemes
- ▶ Spectrum allocation schemes with machine learning algorithms
- ▶ Energy-aware/green communications via machine learning approaches
- ▶ Software defined radios with machine learning schemes
- ▶ Cooperative communications and networking with machine learning
- ▶ Antenna selection and configuration through machine learning models
- ▶ Massive MIMO communications with machine learning schemes
- ▶ Machine learning for network operation and management
- ▶ Machine learning support for Software Defined Networking (SDN) and Network Function Virtualization (NFV)
- ▶ Machine learning for cognitive radio networks
- ▶ Machine learning for wireless sensor networks
- ▶ Machine learning for heterogeneous networks
- ▶ Machine learning for IoT

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/wcmc/mlcpe/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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