



Guest Editorial

Special Section on Emerging Challenges in Computational Intelligence for Signal Processing Applications

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In the new era of technologies, the advancement towards soft computing and the AI is becoming Significant, which results in promising and outstanding performance addressing the uncertain conditions. Soft Computing methods produce tremendous results, which are significantly adhered towards improving the accuracy of a variety of challenging problems in various fields when compared to the traditional machine learning methods. On the other hand, the requirement towards the need for efficient Signal Processing to achieve the targeted goal is high. However, the high-performance system always needs interaction with its environment through real-time signal processing, since the exchange of information between the systems enables a better learning methodology that results in responsible governance. The developed a fully automated system in the field of signal processing would help in accurate identification of abnormalities and rectify them. The accuracy of the computer-aided systems is highly superior to the manual observations, and hence the physicians significantly prefer automated systems. During the previous decade, soft computing has emerged as potential candidates for solving complex and intricate global optimisation problems, which are otherwise difficult to solve by traditional methods. In the present scenario, Signal, signal processing, Industrial optimisation, Control system applications, and power system

application fields have challenging deeds which are to be unraveled by researchers. Some favourite soft computing techniques for Machine Learning and Global Optimisation include Artificial Neural Networks, Fuzzy logic, Genetic Algorithms (GA), Differential Evolution (DE), Ant Colony Optimisation (ACO), Particle Swarm Optimisation (PSO), Artificial Bee Colony (ABC), Firefly Algorithm (FFA) algorithm, etc., are been successfully applied to a wide range of benchmark and real-world application problems.

Day by day the processing of signals with in-depth features has become near impractical due to several reasons. The technology for processing the signal has a lot of challenges and hurdles, which need proper optimisation through intelligence. This special issue is an ideal platform that covers the topics such as deep Boltzmann machine on intelligent signal computing, evolutionary approach to Process the signals, Architectures for the Real-time sensing and intelligent processing, Convolutional Neural Network, Auto-Encoders, Restricted Boltzmann Machines for signal classification, Deep Belief Networks on Real-time Signal processing, Parallel and distributed algorithm design and implementation in signal sensing, Analytics for multi-dimension data, Intelligent computing on signal for data analysis, Real-time remote sensing Signal, such as hyper spectral signal classification, unmixing, compression, content-based signal indexing, and retrieval, land-use, and

land cover classification, target detection/tracking, anomaly detection, monitoring of natural and man-induced disasters, etc. This Special issue gains much importance since it directly influences the signal-processing field and provides welfare for the society.

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