Editorial

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Biographical notes: Srikanta Patnaik is a Professor in the Department of Computer Science and Engineering, SOA University, Bhubaneswar, India. He received his PhD (Engineering) in Machine Intelligence from Jadavpur University in 1999 and supervised 12 PhD theses and more than 30 MTech theses in the area of machine intelligence, soft computing applications and reengineering. He is the Editor-in-Chief of *International Journal of Information and Communication Technology* and *International Journal of Computational Vision and Robotics* published from Inderscience Publishing House, England and also Editor-in-Chief of Book Series on 'Modeling and Optimization in Science and Technology' published from Springer, Germany.

Alok Kumar Jagadev is working as an Associate Professor in the Department of Computer Science and Engineering. He obtained his PhD degree for his work in the field of wireless ad-hoc networks from Siksha 'O' Anusandhan University in 2011. He has contributed more than 30 papers in various journals and conferences of international repute. He has contributed three book chapters. He has authored/co-authored four text books in the field of computer science. He has also edited two books for different international publications like IGI global, Springer. He has involved in organising many international conferences. His research interest includes soft computing, data mining, bioinformatics, etc.

Traditional artificial intelligence (AI) techniques are based on mathematical techniques of symbolic logic, with programming in languages such as Prolog and LISP since its inception. These are now referred to as 'crisp' techniques by the soft computing community. The new wave of AI methods seeks inspiration from the world of biology, and is being used to create numerous real-world intelligent systems with the aid of soft computing tools such as, fuzzy systems, evolutionary computing, memetic algorithms, genetic fuzzy systems, evolutionary learning, metaheuristics, neuro-fuzzy and statistical learning models. Since the early part of 90s, soft computing has become a formal area of research in computer science. It covers computational techniques in machine learning, and engineering disciplines, which investigate, simulate, and analyse very complex issues and phenomena. Unlike conventional computer science (hard) computing scheme, soft computing deals with imprecision, uncertainty, partial truth, and approximation to achieve practicability, robustness and low solution cost. Usually, these kinds of problems originate in the human mind with all its doubts, subjectivity and emotions. Intelligent information systems and intelligent database systems are a very dynamically developing field in computer sciences. The special issue focuses on research in applications of advanced intelligent technologies for data storing/processing in a wide-ranging context, involving solutions to real-life problems in which it is necessary to apply intelligent technologies to achieve effective results. The emphasis of the reported work is on new and original research. This permits a rapid and broad dissemination of research results.

The first paper entitled 'The architecture design of commercial banks' ex-post supervision systems' by Xiaohui Wang proposed a new architecture design and description of commercial banks ex-post supervision system in terms of functions, networks and system interfaces.

The second paper entitled 'Application of fractional order PID in controlling constant current' by Zebiao Shan, Yaowu Shi and Lanxiang Zhu proposed a fractional order PID control scheme for the system of filling and draining off water of the rubber dam which is typically nonlinear, time-varying and variable structure system as the traditional PID control cannot meet the drainage control sufficiently.

The third paper entitled 'Improved quantum-inspired cuckoo search algorithm based on self-adapting adjusting of search range' by Chuan-bao Du, Hou-de Quan and Pei-zhang Cui proposed an improved QCSA based on self-adapting and adjusting the search range, named as IQCSA.

The forth paper entitled 'Enhanced perceptual feature space with context drift information for query by humming system' by Trisiladevi C. Nagavi and Nagappa U. Bhajantri proposed a query by humming (QBH) MIR system for retrieving the desired song based on enhanced perceptual feature set, context drift information (CDI) and humming

query (HQ). They have substantiated the effectiveness of the proposed approach with series of experiments, consisting of 1,200 songs target database and 200 HQs. They have reported the result which shows that the proposed method effectively finds the target song with HQ as input.

The fifth paper entitled 'A light-weight linear coding cipher model for rechargeable wireless sensor networks' by Haifeng Lin and Anna Jiang proposed a light weight linear network coding cipher algorithm for rechargeable wireless sensor networks which use only the basic arithmetic operation instructions. Their simulation result shows that LWLC can achieve a particular lower energy consumption compared with traditional AES algorithm.

The next paper entitled 'Machine learning techniques for decoding GP sentences: effects of processing breakdown' by Jiali Du and Pingfang Yu discusses the decoding of garden path sentences using machine learning techniques.

The next paper entitled 'Intrusion detection system design of cloud computing based on abnormal traffic identification' by Sunan Wang, Yingying Li, Xin Zhao and Bin Wang reported the background of invade with network, generalising the high performance network invade to examine the technique research development condition, then put forward a new intrude detection system of cloud calculate network.

The next paper entitled 'The study of modelling problems of GLM for outstanding claims reserving based on prediction error of reserve' by Chun Yan, Yiwei Qiu, Liangyu Zhang and Wei Liu proposed a stochastic methods for Outstanding Claims Reserving based on generalised linear model (GLM) framework, which is a hotspot in actuarial theory.

The next paper entitled 'An improved artificial bee colony algorithm for numerical functions' by Jiuyuan Huo, Yaonan Zhang and Hongxing Zhao proposed a modified ABC algorithm (denoted as ORABC) based on the optimisation strategy and retained strategy of the best individual. They have reported the numerical simulation results, which demonstrate that ORABC algorithm improves the convergence characteristics of ABC algorithm and provides a very remarkable performance in solving complex numerical optimisation problems compared to original algorithm.

The next paper entitled 'Study on cellular iterative location algorithm with Gaussian noise' by Qinli An, Jianfeng Chen and Zhonghai Yin proposed an algorithm of maximum likelihood estimation (MLE) for locating a user based on direction of arrival (DOA) measurements, when the errors of the DOA measurements obey same gaussian distribution for each sensor in the wireless cellular network.

The next paper entitled 'Improvement in multiple nodes positioning accuracy for wireless sensor networks based on unknown transmitted powers' by Wen-gang Zhou, Ying-chun Qi and Hai-lin Pei proposed a novel localisation refinement method to improve the positioning accuracy for wireless sensor nodes. They have employed a linear estimator to estimate the source positions along with the transmitted powers, and then use an addition of source position to improve the nodes positioning accuracy.

The next paper entitled 'Forward tentative selection with backward propagation of selection decision algorithm for attribute reduction in rough set theory' by Srilatha Chebrolu and Sriram G. Sanjeevi proposed a forward tentative selection with backward propagation of selection decision (FTSBPSD) algorithm to find a reduct, which is based on the principle of indiscernibility of rough set theory.

The next paper entitled 'A new approach to soft sets, soft multisets and their properties' by B.K. Tripathy and K.R. Arun introduced the notion of characteristic function of a soft set, which helps in defining the basic operations on soft sets concisely; several concepts associated with it efficiently and make the proofs of properties more elegant.

The next paper entitled 'A new approach to intrusion detection in databases by using artificial neuro fuzzy inference system' by Anitarani Brahma and Suvasini Panigrahi have proposed a database intrusion detection system using ANFIS as a classifier which is capable of outperforming in many ways and better suits the demands and dynamic nature of the problem.

The next paper entitled 'A bio-inspired, incremental clustering algorithm for semantics-based web service discovery' by S. Sowmya Kamath and V.S. Ananthanarayana proposed a service crawler-based web service discovery framework, which employs information retrieval techniques to effectively gather published service descriptions available on the web. They have claimed that the proposed algorithm effectively handled the service crawler dataset of more than 11,500 service descriptions, with dynamic requirements of the proposed framework.

The next paper entitled 'Ontological classification of individuals: a multi-viewpoints approach' by Meriem Djezzar and Zizette Boufaida proposed a multi-viewpoint ontology which confers to the same universe of discourse and several partial descriptions, where each one is relative to a particular viewpoint.

The next paper entitled 'Colouring graph by the kernel P system' by Khaira Tazir and Yamina Mohamed Ben Ali proposed the kernel P systems to solve the graph colouring problem.

The paper entitled 'An integrated covering-based rough fuzzy set clustering approach for sequential data' by P. Prabhavathy and B.K. Tripathy proposed a new approach named 'covering-based rough set'. The authors have proposed the covering-based rough fuzzy set clustering approach to resolve the uncertainty of sequence data.

The paper entitled 'Automatic annotation generation of medical documents for effective medical information retrieval' by P. Gayathri and N. Jaisankar proposed a new framework called annotation-based context-aware indexing (ACI) for effective medical information retrieval. They have claimed that the proposed ACI achieves 7% better performance than BioDI for 500 retrieved documents.

The paper entitled 'Motif-Plus: incorporation of network motifs into top-n friendship recommendations' by Mingxin Gan and Le Li proposed a new method to quantify the willing-power that drives two people become friends by making use of triangular motifs and propose a strategy called Motif-Plus that utilise local information of a social network for friendship recommendations.

The paper entitled 'Firefly algorithm assisted multi-user detection for OFDM/SDMA uplink system' by K.V. Shahnaz and C.K. Ali presented a newly developed firefly algorithm (FA) which has been utilised to detect the users' transmitted data and the result has been compared with genetic algorithm (GA) and particle swarm optimisation (PSO) aided data detection.

The last but not least paper entitled 'Novel research framework on SN's NoSQL databases for efficient query processing' by Anita Brigit Mathew and S.D. Madhu Kumar focused on four different NoSQL databases used by social networking sites like Facebook, LinkenIn, Twitter, MySpace, Foursquare, Flickr and Friendfeed. They have presented a comparative study of these four NoSQL databases for social network uses.

We thank all the authors for their contributions. We hope that the researchers in this area shall be immensely benefited out of this special issue.