Editorial

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Biographical notes: Jude Hemanth received his BE degree from Bharathiar University, India in 2002, ME degree from Anna University, India in 2006 and PhD degree from Karunya University, India in 2013. He has published several research papers in several SCIE indexed international journals and reputed international conferences. He has written books on 'soft computing' approaches with leading international publishers. He has organised several international conferences across the globe. He also serves in various positions of editorial board of many international journals. His current areas of interest are soft computing techniques, image processing and biomedical applications.

Vania Viera Estrela received her BSc degree from Federal University of Rio de Janeiro (UFRJ) in Electrical and Computer Engineering (ECE); MSc degree from the Instituto Tecnológico de Aeronáutica (ITA), Sao Jose dos Campos; MSc in ECE at Northwestern University, Evanston, Illinois (IL), USA; and PhD in ECE from the Illinois Institute of Technology (IIT), Chicago, IL, USA. Her teaching experience includes teaching at DeVry University; DePaul University; Universidade Estadual do Norte Fluminense (UENF), Campos de Goytacazes, Rio de Janeiro (RJ), Brazil; and for the Universidade Estadual da Zona Oeste (UEZO), Rio de Janeiro, RJ, Brazil. She is also a Visiting Professor at the Polytechnic Institute of Rio de Janeiro (IPRJ)/State University of Rio de Janeiro (UERJ) in Nova Friburgo, RJ. She is currently working at the Universidade Federal Fluminense (UFF), RJ, Brazil for the Department of Telecommunications. Her research interests include: signal/image/video processing, inverse problems, computational and mathematical modelling, stochastic models, multimedia, communications, motion estimation, machine learning and geoprocessing. She is the reviewer for the following journals/magazines: *IMAVIS* (Elsevier); *Pattern Recognition* (Elsevier); *Computers & Electrical Engineering* (Elsevier); *ELCVIA*; *IET Image Processing*; and *IET Computer Vision and International Journal of Image Processing* (*IJIP*). She is engaged in topics such as technology transfer, engineering/math/computer education, environmental issues and digital inclusion. She is a member of IEEE and ACM. She is the Editor of *IJIP*.

Information technology has become increasingly important in everyday's life, especially in the medical field. Various engineering concepts have been developed specifically for medical imaging applications. Few of the application domains are disease diagnosis in medical images, effective utilisation of resources, power optimisation in health centres and medical data transmission through wired/wireless media. The application of information technology in these areas has been encouraged by all walks of the people across the globe. The numerous advantages of these technologies have not only made the life simple but also efficient. However, there are many areas left unexplored in medical informatics which shows the availability of scope for improvement. This special issue specially focuses on bringing out the hidden challenges of medical informatics field and possible solutions for such problems. This issue also encourages researchers in the allied area of medical informatics to bring in the innovative ideas for solving the various problems of human society.

The first paper deals with the fuzzy controller which solves the problem of accuracy deficiency in most of the controlling applications. The proposed controller involves the concept of cascading which increases the performance to high extent. This approach can be used to control the various operations in a hospital setup which will optimise the various resources. The second paper deals with medical diagnostics in which the authors have developed an automated system for heart disease diagnosis with high accuracy. Soft computing approaches such as fuzzy logic are employed in this work along with cognitive concepts. This methodology shall be of much use for the cardiologists in accurate diagnosis and treatment planning.

Another fuzzy-based controller is demonstrated in the third paper for performance enhancement over the conventional approaches. In this paper, the power supply optimisation is given much emphasis which governs the perfect operation of various medical equipments. FPGA-based implementation is also provided in this paper which is another evidence for the results reported in this work. Noise removal in medical images is extremely important and the fourth paper attacks this problem with evolutionary computational approaches. An opposition-based firefly algorithm is reported in this work for contrast enhancement in medical images. Since the presence of noise reduces the efficiency of the overall system, image enhancement approaches illustrated in this paper will be helpful to the field of medical informatics.

An extensive literature survey on image steganography techniques is provided in the fifth paper. The pros and cons of each steganography approach are discussed in detail for the benefit of future researchers. These approaches are much helpful in the context of telemedicine applications. Another noise removal approach for medical images is developed in the sixth paper. This work focuses on removing the noise effects which are born while compressing the medical images. Filtering-based techniques are adopted in this work for successful elimination of the artefacts.

The seventh paper addresses the hardware implementation aspects of cryptographic algorithms using biometric images. These types of approaches are mainly used for secured transmission of patient details from one location to other location. Moreover, this approach also focuses on product development of image-based algorithms. Transform-based approaches are widely preferred for image processing applications. The eighth paper deals specifically with the radon transform with an objective to improvise the efficiency of imaging applications with such transform. An extensive mathematical analysis is given in this work to validate the theoretical conclusions.

Pattern matching in computational biology is the focal point of the ninth paper. The parametric approaches are used in this work which is commonly employed for pattern matching applications. This work will be useful to the scientists and researchers working in the field of bioinformatics. The final paper is a general paper which proposes an automated tool to check the reliability of surveys. Specifically, medical imaging application-based surveys differ based on the geographical location of the focal point of survey. In such cases, the proposed approach will be highly useful.

Thus, this special issue brings out the various technical concepts of medical imaging and the allied areas for the benefit of the human society.