
Preface

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Biographical notes: Nilmini Wickramasinghe has an internationally recognised research record in the area of healthcare and technology management. Her expertise is in the strategic application and management of technology for effecting superior healthcare solutions. As of 13th December 2009 she was appointed the Professor of Information Management and Library Science in the School of Business IT and Logistics at RMIT University. She currently has over 200 peer-reviewed scholarly publications and is the author of several books and an Encyclopaedia in Healthcare and Technology. In addition, she is the Editor-in-Chief of two scholarly international peer-reviewed scholarly journals published by Inderscience.

Healthcare management has been on the whole slow to embrace technology, but the converse can be seen in the domain of biomedical engineering, where technology applications and solutions are being readily embraced to facilitate better cures, better diagnostic capabilities and better monitoring. This special issue has been compiled to give the reader an inkling into the multifarious opportunities for technology in the domain of biomedical engineering.

Paper 1 by Rama Raju et al., 'Engineering modelling for alliance of late potentials in ECG signals in the course of wavelets', focuses on the area of monitoring relating to ECG.

Paper 2 by Devakumari et al., 'Unsupervised bidirectional feature selection based on contribution entropy for medical databases', focuses on databases and ultimately supporting decision making.

'Performance comparison of genetic algorithm and principal component analysis methods for ECG signal extraction', by Balambigai and Asokan, also focuses on monitoring aspects concerning ECG.

Paper 4, by Garg and Sharma, 'Stress effects on fundamental frequency of human voice: a review', tries to understand stress impacts and voice frequency, thus having a more diagnostic perspective.

'Discovering maximal size coherent biclusters from gene expression data', by Bagyamani and Thangavel, looks at how to discover critical issues with gene data.

Paper 6, by Suganthi et al., 'Modelling the effects of upper arm cuff pressure on pulse morphology', focuses on a different aspect within the realm of biomedical engineering, namely, that of modelling.

‘Effect of gastric myoelectric activity on pulse rate variability in fasting and postprandial conditions’, by Mohamed Yacin et al., provides another example of monitoring in a different context.

Paper 8, by Ravikumar et al., ‘Design and analysis of coronary stent’, returns to the heart but discusses critical considerations when designing a tool to facilitate addressing a healthcare problem.

Finally paper 9, by Selvathi and Thamarai Selvi, ‘Support value transform-based multimodality medical image fusion’, introduces us to yet another important area within biomedical engineering by discussing medical imaging.

Taken together, these nine papers do not even begin to scratch the surface or give us a true indication of the vast breadth and depth for the application of technology in biomedical engineering. They do, however, serve to introduce us to some of the key areas and the opportunities for technology. In so doing it is hoped that this will spur the reader’s interest and imagination to delve further into this domain and perhaps even begin to add to this research body by bringing to bear another important consideration that of the management of these technologies. I trust you find the following miscellany of papers in the area of biomedical engineering of interest.