

Biomedical Engineering

Techniques and Applications
Book Series

Handbook of Artificial Intelligence in Biomedical Engineering



Editors

Saravanan Krishnan | Ramesh Kesavan | B. Surendiran | G. S. Mahalakshmi



CRC Press

Taylor & Francis Group

APPLE ACADEMIC PRESS

สำนักหอสมุด มหาวิทยาลัยเชียงใหม่

6 16705713

0 12577429

1 22685947

Biomedical Engineering: Techniques and Applications

HANDBOOK OF ARTIFICIAL INTELLIGENCE IN BIOMEDICAL ENGINEERING

Edited by

Saravanan Krishnan, PhD

Ramesh Kesavan, PhD

B. Surendiran, PhD

G. S. Mahalakshmi, PhD



สำนักหอสมุดมหาวิทยาลัยเชียงใหม่
CHIANG MAI UNIVERSITY LIBRARY

AAP | APPLE
ACADEMIC
PRESS

CONTENTS

<i>Contributors</i>	<i>xiii</i>
<i>Abbreviations</i>	<i>xvii</i>
<i>Preface</i>	<i>xxiii</i>
1. Design of Medical Expert Systems Using Machine Learning Techniques.....	1
S. Anto, S. Siamala Devi, K. R. Jothi, and R. Lokeshkumar	
2. From Design Issues to Validation: Machine Learning in Biomedical Engineering.....	31
Christa I. L. Sharon and V. Suma	
3. Biomedical Engineering and Informatics Using Artificial Intelligence	51
K. Padmavathi and A. S. Saranya	
4. Hybrid Genetic Algorithms for Biomedical Applications	73
Srividya P. and Rajendran Sindhu	
5. Healthcare Applications of the Biomedical AI System	99
S. Shyni Carmel Mary and S. Sasikala	
6. Applications of Artificial Intelligence in Biomedical Engineering	125
Puja Sahay Prasad, Vinit Kumar Gunjan, Rashmi Pathak, and Saurabh Mukherjee	
7. Biomedical Imaging Techniques Using AI Systems	147
A. Aafreen Nawresh and S. Sasikala	
8. Analysis of Heart Disease Prediction Using Machine Learning Techniques.....	173
N. Hema Priya, N. Gopikarani, and S. Shymala Gowri	
9. A Review on Patient Monitoring and Diagnosis Assistance by Artificial Intelligence Tools.....	195
Sindhu Rajendran, Meghamadhuri Vakil, Rhutu Kallur, Vidhya Shree, Praveen Kumar Gupta, and Lingaiya Hiremat	
10. Semantic Annotation of Healthcare Data	217
M. Manonmani and Sarojini Balakrishanan	

11. Drug Side Effect Frequency Mining over a Large Twitter Dataset using Apache Spark	233
Dennis Hsu, Melody Moh, Teng-Sheng Moh, and Diane Moh	
12. Deep Learning in Brain Segmentation.....	261
Hao-Yu Yang	
13. Security and Privacy Issues in Biomedical AI Systems and Potential Solutions	289
G. Niranjana and Deya Chatterjee	
14. LiMoS—Live Patient Monitoring System	311
T. Ananth Kumar, S. Arunmozhi Selvi, R.S. Rajesh, P. Sivananaintha Perumal, and J. Stalin	
15. Real-Time Detection of Facial Expressions Using k-NN, SVM, Ensemble classifier and Convolution Neural Networks	331
A. Sharmila, B. Bhavya, and K. V. N. Kavitha, and P. Mahalakshmi	
16. Analysis and Interpretation of Uterine Contraction Signals Using Artificial Intelligence.....	353
P. Mahalakshmi and S. Suja Priyadharsini	
17. Enhanced Classification Performance of Cardiotocogram Data for Fetal State Anticipation Using Evolutionary Feature Reduction Techniques.....	371
Subha Velappan, Manivanna Boopathi Arumugam, and Zafer Comert	
18. Deployment of Supervised Machine Learning and Deep Learning Algorithms in Biomedical Text Classification	401
G. Kumaravelan* and Bichitrananda Behera	
19. Energy Efficient Optimum Cluster Head Estimation for Body Area Networks	423
P. Sundareswaran and R.S. Rajesh	
20. Segmentation and Classification of Tumour Regions from Brain Magnetic Resonance Images by Neural Network-Based Technique	447
J. V. Bibal Benifa and G. Venifa Mini	
21. A Hypothetical Study in Biomedical Based Artificial Intelligence Systems using Machine Language (ML) Rudiments	469
D. Renuka Devi and S. Sasikala	
22. Neural Source Connectivity Estimation using particle filter and Granger causality methods.....	493
Santhosh Kumar Veeramalla and T. V. K. Hanumantha Rao	

23. Exploration of Lymph Node-Negative Breast Cancers by Support Vector Machines, Naïve Bayes, and Decision Trees: A Comparative Study 509
J. Satya Eswari and Pradeep Singh

Index..... 525