



The Open Biomedical Engineering Journal

Content list available at: <https://openbiomedicalengineeringjournal.com>



EDITORIAL

Applications of Soft Computing and Machine Learning Techniques for Biomedical Signals and Images

Rahul K. Kher^{1*}, Chirag Paunwala², Falgun Thakkar¹, Heena Kher³ and Mita Paunwala⁴

¹G. H. Patel College of Engineering & Technology, Gujarat 388120, India

²Sarvajani College of Engineering & Technology, Gujarat 395001, India

³A. D. Patel Institute of Technology, Gujarat 388121, India

⁴C. K. Pithawala College of Engineering & Technology, Gujarat 395007, India

Biomedical signals like ECG, EEG, EMG, EOG, ERG, *etc.*, and images such as ultrasound, MRI, CT, PET, *etc.*, are very useful for assessing the wellbeing of a human being. In order to determine the abnormality in a particular organ or part of the body, physicians use these signals and images. Although today's signal recorders and image scanners are of excellent resolution and quality, sometimes they fail to convey the actual scenario of the body part/organ [1 - 5].

Soft computing and machine learning methods play an important role in dealing with biomedical signals/images, and they have numerous applications like noise/artifact removal from signals/images, early detection of seizure/ cancer/tumors, the fusion of images for better diagnosis, classification of signals/images and many more.

This special issue aims to compile the novel research outcomes of various soft computing and machine learning algorithms applied to a variety of biomedical signals/images. We have received exceptional responses to this thematic issue. Some of the notable contributions include applications of deep learning and convolutional neural networks for cancer detection, content-based medical image retrieval, tumor detection using MRI, COVID-19 screening using chest radiography, machine learning-based epileptic seizure detection, *etc* [6 - 11].

* Address correspondence to this author at the G. H. Patel College of Engineering & Technology, India; E-mail: rahul2777@gmail.com

REFERENCES

- [1] M. Hiren, F. Al-Asad Jawad, P. Amitl, C. Jitendra, M. Keyur, and V. Alpesh, "Multi-channel local binary pattern guided convolutional neural network for breast cancer classification", *Open Biomed. J.*, vol. 15, 2021. [E-pub ahead of print]
- [2] P. Suprava, G. Sourodp, G. Richik, and S. Shreya, "Identifying skeletal maturity from X-rays using Deep Neural Networks", *Open Biomed. J.*, vol. 15, 2021. [E-pub ahead of print]
- [3] K. Kalaivani, and R. Sivakumar, "A novel approach to information security in medical sensor networks", *Open Biomed. J.*, vol. 15, 2021. [E-pub ahead of print]
- [4] J. Jaya, A. Sasi, B. Paulchamy, K.J. Sabareesaan, R. Sivakumar, and B. Nagaraj, "Neural network based filtering method for cancer detection", *Open Biomed. J.*, vol. 5, 2021. [E-pub ahead of print]
- [5] S. Kathiravan, S. Ramaneswaran, R. Sivakumar, G.V. Dimiter, and V. Branislav, "Realizing the effective detection of tumor in magnetic resonance imaging using cluster-sparse assisted super-resolution", *Open Biomed. J.*, vol. 5, 2021. [E-pub ahead of print]
- [6] D.B. Shital, and B.S. Himanshu, "Improving classification accuracy of pulmonary nodules using simplified deep neural network", *Open Biomed. J.*, vol. 5, 2021. [E-pub ahead of print]
- [7] V. Gargee, C. Shreya, G. Ruchi, G. Nagendra, P. Deven, and B. Manish, "Time series prediction of viable embryo and automatic grading in ivf using deep learning", *Open Biomed. J.*, vol. 5, 2021. [E-pub ahead of print]
- [8] J. Nishant, Y. Arvind, K.S. Yogesh, and B. Arun, "Analysis of discrete wavelet transforms variants for the fusion of ct and mri images", *Open Biomed. J.*, vol. 5, 2021. [E-pub ahead of print]
- [9] K.K. Rahul, and M.P. Dipak, "A comprehensive review on wearable health monitoring systems", *Open Biomed. J.*, vol. 5, 2021. [E-pub ahead of print]
- [10] A.R. Ojas, D. Pooja, P. Parima, D. Upena, C.P. Mita, and N.P. Chirag, "Novel multi-modal throat inflammation and chest radiography based early-diagnosis and mass-screening of COVID-19", *Open Biomed. J.*, vol. 5, 2021. [E-pub ahead of print]
- [11] R.K. Mayank, and N.P. Chirag, "Content based medical image retrieval for accurate disease diagnosis", *Open Biomed. J.*, vol. 5, 2021. [E-pub ahead of print]

© 2021 Kher *et al.*

This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International Public License (CC-BY 4.0), a copy of which is available at: <https://creativecommons.org/licenses/by/4.0/legalcode>. This license permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.