102



The Open Biomedical Engineering Journal

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



EDITORIAL

Advanced Algorithms for Medical Image Processing

T. Rajendran¹, K. P. Sridhar², S. Manimurugan^{3,*} and S. Deepa⁴

Medical image processing in healthcare and biomedical research centers has demonstrated predominant advantages to the world [1]. Lately, a lot of research articles were published, featuring the need for Medical image processing in various health issues of the human body and its major internal organs. The quintessence of diagnostic imaging algorithms is to facilitate the process of observing a patient's body and its major internal organs with higher efficiency and accuracy in recognition diseases or injuries [2]. Normally, diagnostic reports of patients incorporate radiographic representation of human body or its parts; utilization of various medical image processing techniques improves the procedure applied to the patients. Algorithms plays a major role in the artifacts filtering, segmentation, feature extraction and classification, which will expedite the disease diagnosis. In the recent two decades, deep learning algorithms played a vital role in the medical image processing with improved performance than the conventional machine learning algorithms, such advanced algorithms that show greater accuracy in the classification of cancer cells, lesions, organ segmentation and medical image enhancement with an average accuracy ranges of 96% to 98% [3]. In the mere future, advanced computational and learning approaches like Deep learning and hybrid deep learning approaches will play a vital role in the field of diagnostic imaging with most substantial clinical impact on medical imaging examinations to provide improved decision support in medical image interpretation and analysis [4 - 10].

REFERENCES

- Z. Sun, K.H. Ng, and N. Ramli, "Biomedical imaging research: A fastemerging area for interdisciplinary collaboration", *Biomed Imaging Interv J*, vol. 7, no. 3, 2011.e21
 [PMID: 22279498]
- [2] G. Litjens, T. Kooi, B.E. Bejnordi, A.A.A. Setio, F. Ciompi, M. Ghafoorian, J.A.W.M. van der Laak, B. van Ginneken, and C.I. Sánchez, "A survey on deep learning in medical image analysis", *Med. Image Anal.*, vol. 42, pp. 60-88, 2017.
 [http://dx.doi.org/10.1016/j.media.2017.07.005] [PMID: 28778026]
- [3] G. Forslid, H. Wieslander, E. Bengtsson, C. Wahlby, J-M. Hirsch, C.R. Stark, and S.K. Sadanandan, "Deep convolutional neural networks for detecting cellular changes due to malignancy", 2017 IEEE International Conference on Computer Vision Workshops (ICCVW), , 2017pp. 82-89 [http://dx.doi.org/10.1109/ICCVW.2017.18]
- [4] T. Rajendran, and K.P. Sridhar, "Epileptic seizure classification using feed forward neural network based on parametric features", *Int J Pharma Res.*, vol. 10, no. 4, pp. 189-196, 2018.
- [5] V. Hariraj, and W. Khairunizam, "Vikneswaran, Ibrahim Z, Shahriman A B, Razlan, Z M, Rajendran T, Sathiyasheelan R. Fuzzy multi-layer SVM classification of breast cancer mammogram images", *Int J Mech Eng and Tech.*, vol. 9, no. 8, pp. 1281-1299, 2018.
- [6] F Muthu, T S Aravinth, and T. Rajendran, "Design of CMOS 8-bit parallel adder energy efficient structure using SR-CPL logic style", *Pak J Biotechnol.*, vol. 14, no. Special Issue 2, pp. 257-260, 2017.
- [7] P Yuvaraj, T Rajendran, and K. Subramaniam, "Design of 4-bit multiplexer using Sub-Threshold Adiabatic Logic (STAL)", Pak J Biotechnol., vol. 14, no. Special Issue 2, pp. 261-264, 2017.
- [8] S Keerthivasan, M G R Babu, and T Rajendran, "Design of low intricate 10-bit current steering digital to analog converter circuitry using full swing GDI", *Pak J Biotechnol.*, vol. 14, no. Special Issue 2, pp. 204-208, 2017.
- [9] P Vijayakumar, T Rajendran, and M G R Babu, "Efficient implementation of decoder using modified soft decoding algorithm in Golay (24,12) code", Pak J Biotechnol., vol. 14, no. Special Issue 2, pp. 200-203, 2017.
- [10] M.L. Giger, "Machine Learning in Medical Imaging", J. Am. Coll. Radiol., vol. 15, no. 3 Pt B, pp. 512-520, 2018. [http://dx.doi.org/10.1016/j.jacr.2017.12.028] [PMID: 29398494]

© 2019 Rajendran 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.

¹Makeit Technologies (R&D Center for Academic & Industrial Research), Coimbatore, Tamil Nadu, India

²Karpagam Academy of Higher Education, Coimbatore, Tamil Nadu, India.

³Department of Computer Engineering, University of Tabuk, Tabuk City, Kingdom of Saudi Arabia.

⁴Karpagam College of Engineering (Autonomous), Coimbatore, Tamil Nadu, India.

^{*} Address correspondence to this author at the Department of Computer Engineering, University of Tabuk, Tabuk City, Kingdom of Saudi Arabia; E-mail: semanimurugan@gmail.com