

Special Issue: New Advances of Neural Networks for Cancer Diagnosis

Cancer is a terrible disease. Millions of people die from the disease every year. Doctors and clinicians need to choose the right treatment for cancer patients. Therefore, cancer cells must be properly identified. At present, Artificial Neural Network (ANN) is a field of research in medical sciences, especially in the fields of cardiovascular, radiology, cancer, and urology. Neural networks have different technologies for classifying cancer. The neural network is very useful for diagnosing and monitoring cancer.

Artificial neural networks are new systems and computational methods that are considered to be very effective methods for detecting a fixed pattern. This structure is very useful for detecting cancer in the early stages. In the healthcare industry, ANNs are used in medical engineering to diagnose, treat, and predict diseases. Neural networks with their remarkable ability to infer results from complex data can be used to extract patterns and identify various trends that are very difficult for humans and computers to identify.

Neural networks have come to the aid of medical science due to their unique abilities, and in cases where this science has not been able to solve its shortcomings on its own, they can be of great help in resolving its disabilities. Cost reduction, the highest confidence and accuracy of physicians in their decisions, making more efficient medical devices are among the services that neural networks have provided to physicians. Several works have been done in this area, from optimized neural networks to newly introduced deep neural networks. However, it is still a challenging task to appropriately investigate these data for the medical application. The appropriate design of the neural networks in the cancer diagnosis purpose could contribute to the improvement of efficiency for these diagnosis systems.

The main purpose of this Special Issue is to analyze different types of neural networks for use in the diagnosis of various diseases as new guidance for applicable researchers and extend the perspectives of neural network researchers. Both research and review articles are welcomed.

Potential topics include but are not limited to the following:

- The role of Artificial Neural Network in the development of cancer diseases

- Supervised and unsupervised artificial neural networks in cancer medical imaging
- Deep neural networks in cancer diagnosis
- Optimized neural networks and their applications in cancer diagnosis
- Combined neuro-fuzzy systems for cancer diagnosis
- Deep sparse representation-based diagnosis systems for cancer classification

Keywords

Computer-aided Diagnosis; Cancer; Artificial Neural Networks; meta-heuristics; optimization; medical imaging.

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