

Neural Networks in Medical Image Cancer Diagnosis Using Deep Learning Feature Selection Techniques

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Abstract:

Accurate and early diagnosis of cancer through medical imaging is critical for effective treatment planning and improved patient outcomes. This study examines the application of neural networks combined with deep learning-based feature selection techniques in enhancing cancer detection from medical images such as MRI, CT, and histopathology scans. Convolutional Neural Networks (CNNs) are employed to automatically extract and select high-level features that are most indicative of malignancy, reducing the need for manual intervention and minimizing diagnostic errors. The integration of feature selection algorithms, including recursive feature elimination and attention mechanisms, improves model interpretability and classification accuracy. The proposed framework demonstrates high precision and recall rates across multiple cancer types, highlighting the effectiveness of deep learning in supporting radiologists and oncologists. This approach offers a scalable and non-invasive diagnostic solution, promoting more accurate, timely, and personalized cancer care.

Keywords:

Neural networks, cancer diagnosis, medical imaging, deep learning, feature selection, CNN.

REQUEST FOR FULL TEXT

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