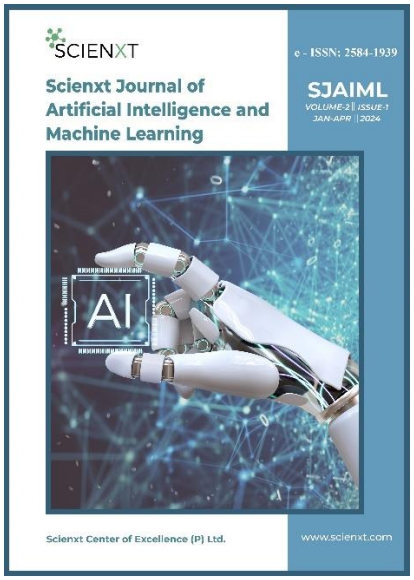

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Utilizing deep autoencoders for extracting key features in alzheimer's disease diagnosis

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Abstract:

This paper introduces a novel approach for extracting features of Alzheimer's disease (AD) from MRI images using a Deep Autoencoder (DAE). Utilizing a custom-made five-layer encoder architecture, feature extraction is made easier. The efficacy of the DAE is meticulously assessed using nine diverse Machine Learning Classifiers. Cross-validation is performed to substantiate the superiority of the DAE's feature extraction by comparing the classification of AD stages with Clinical data. The dataset encompasses distinct stages of AD, enabling a comprehensive analysis. Our results showcase the proposed method's superiority, surpassing clinical data and outperforming related methodologies from other researchers.

Keywords:

Deep Autoencoder (DAE), Magnetic Resonance Imaging (MRI), Alzheimer's disease (AD), Machine Learning, Deep Learning.