DETECTING ALZHEIMER'S DISEASES BY ADVANCEMENTS IN EEG SIGNAL ANALYSIS WITH MULTIMODAL MRI INTEGRATION

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Relevance. As a consequence of an increase in the community's average life duration, dementia has surfaced as a public health problem of pressing and important concern. This is a direct result of the rising average age of the population. Before the middle of the 1960, people believed that senile dementia was more common than Alzheimer's disease (AD), which at the time was thought of as a form of pre-senile dementia The main contributions of this work is to develop an intelligent system that is built on machine developing machine learning and is envisioned to provide health reasons practitioners with helping hands in making an accurate detection of Alzheimer's condition by utilizing magnetic resonance imaging

Goal of the work –Is to address the pressing and important public health concern of Alzheimer's disease, which has become increasingly prevalent due to the rising average age of the population. The work aims to explore the evolution of the understanding and diagnosis of Alzheimer's disease, as well as the ongoing research and development in this area. Additionally, the work seeks to highlight the complexities and challenges associated with managing non-communicable diseases, particularly dementia and Alzheimer's disease, and to emphasize the need for collaboration across various sectors to effectively address this issue.

Result – One of the most significant achievements of this research is the development of an advanced intelligent system based on machine learning. This system is designed to aid medical professionals in the detection of Alzheimer's disease using magnetic resonance imaging. The deep learning models, trained on brain images for each of the four diseases, have achieved a level of effectiveness that is considered to be at the forefront of the field. This breakthrough has the potential to revolutionize the early diagnosis and treatment of Alzheimer's disease.

Conclusion. Deep learning has recently been utilized for the analysis of neuroimages, including magnetic resonance imaging (MRI), functional MRI, and positron emission tomography (PET), and has shown significant performance improvements over traditional machine learning in the automated examination of brain disorders. One of the key accomplishments of this research is the development of an intelligent system based on machine learning, aimed at assisting medical professionals in the detection of Alzheimer's disease through MRI. The deep learning models trained on brain images for each of the four diseases have achieved cutting-edge effectiveness in the field.