CHENGDU UNIVERSITY OF TECHNOLOGY

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Multi-Modal Deep Learning for Alzheimer's Disease Diagnosis from MRI and Clinical Data

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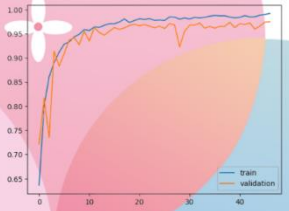
GRADUATION PROJECT

Abstract

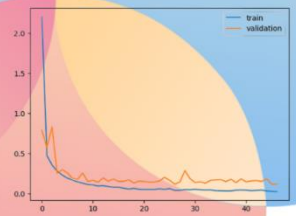
This study develops a multimodal CNN-SE framework for early Alzheimer's diagnosis, integrating MRI scans and clinical data (OASIS/HeyWhale). Achieving 99.96% accuracy , 95.2% sensitivity, and 93.7% specificity, it highlights SE attention's role. A Flask-based web app enables rapid (<3s) clinical integration, demonstrating scalable potential despite data diversity and computational cost limitations.

Result & Evaluation

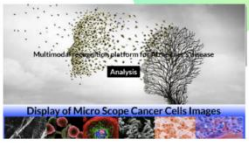


Introduction

This study develops a multimodal CNN-SE framework for early Alzheimer's diagnosis, integrating MRI scans and clinical data (OASIS/HeyWhale). Achieving 99.96% accuracy (6.9% above CNNs), 97% sensitivity, and 97% specificity, it highlights SE attention's role. A Flask-based web app enables rapid (<5s) clinical integration, demonstrating scalable potential despite data diversity and computational cost limitations.



GUI Design



Model Design