

## **A Novel Approach Utilizing Machine Learning for the Early Diagnosis of Alzheimer's Disease**

- OASIS dataset and for the missing values, the mean method to impute the missing values.
- Models tested Gaussian Naive Bayes, XGBoost, Decision Tree, Random Forest, Gradient Boosting, and Voting.

## **Deep Learning Approach for Early Detection of Alzheimer's Disease**

- They use data augmentation techniques like rotation and reflection (flipping), which flip the images horizontally and vertically.
- They proposed a framework for the early detection of Alzheimer's Disease called E2AD2C
- This medical image classification is applied using two methods. The first method uses simple CNN architectures that deal with 2D and 3D structural brain scans from the ADNI dataset based on 2D and 3D convolution. The second method applies the transfer learning principle to use the pre-trained models. So, the VGG19 model is fine-tuned and used for multi-class medical image classifications.

## **EARLY DIAGNOSIS OF ALZHEIMER'S DISEASE WITH DEEP LEARNING**

- The models tested for this were two single-kernel SVM (SK-SVM) and multi-kernel SVM (MK-SVM).
- The Dataset used in this experiment was the Alzheimer's Disease Neuroimaging Initiative (ADNI)
- Binary and 4-class classification was done.

## **DEMNET: A Deep Learning Model for Early Diagnosis of Alzheimer's Diseases and Dementia From MR Images**

- A CNN was used to extract the discriminative features. The CNN was built from scratch and named DEMNET.
- The Kaggle open-source dataset was used, and the Synthetic Minority Over-sampling Technique (SMOTE) was used to fix the classes' imbalance.

