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| **ADNI** | | | | | |
| **Datatype** | **Paper** | **Accuracy** | **ROC** | **Model** | **Notes** |
| MRI  (preprocessed by VBM and VolBM) | [‘Diagnosis of Alzheimer's disease using universum support vector machine based recursive feature elimination (USVM-RFE)’](https://www.sciencedirect.com/science/article/pii/S1746809420300598) | CN vs AD: 100%(VolBM)  MCI vs AD:  73.68%(VolBM)  CN vs MCI:  90% (VBM) |  | USVM-RFE | 150 MRIs .  Three binary classification (CN vs AD, CN vs MCI, MCI vs AD)  . |
| MRI | [‘A new strategy for the early detection of alzheimer disease stages using multifractal geometry analysis based on K-Nearest Neighbor algorithm’](https://www.nature.com/articles/s41598-022-26958-6) | CN: 100%  MCI: 100%  AD: 98%  Total: 99.3% | 91%;  92%;  91%. | KNN and Multifr-actal | 750 MRIs comprising 200 CN, 200 MCI, 200 AD, and 150 for testing.  Three label classification:  CN, MCI and AD. |
| MRI | [‘Developing a Machine Learning Workflow to Explain Black-box Models for Alzheimer’s Disease Classification’](https://www.researchgate.net/profile/Christoph-Friedrich/publication/349389701_Developing_a_Machine_Learning_Workflow_to_Explain_Black-box_Models_for_Alzheimer's_Disease_Classification/links/602efbd8299bf1cc26d6555e/Developing-a-Machine-Learning-Workflow-to-Explain-Black-box-Models-for-Alzheimers-Disease-Classification.pdf) | CN vs. MCI:  71.03% |  | RF | 1700 MRIs.  Only using 2 classes:  CN vs MCI |
| MRI | [‘A Deep Learning approach for Diagnosis of Mild Cognitive Impairment Based on MRI Images’](https://www.mdpi.com/2076-3425/9/9/217) | CN vs. LMCi: 95.54%  CN vs. EMCI:  93.96%  EMCI vs.LMCI:  93.00% | 0.994;  0.988;  0.981. | CNN | 3600 MRIs.  Binary classification between three classes: EMCI and LMCI. |
| MRI | [‘Brain Asymmetry Detection and Machine Learning Classification for Diagnosis of Early Dementia’](https://www.mdpi.com/1424-8220/21/3/778) | EMCI vs. CN: 92.5%  AD vs. CN:  93.0%  AD vs. EMCI:  86.5% | 98%;  99%;  94%. | SVM  (cubic kernel) | 600 MRIs.  Binary classification between three classes: EMCI, CN and AD. |
| MRI | [‘Transfer Learning With Intelligent Training Data Selection for Prediction of Alzheimer’s Disease’](https://ieeexplore.ieee.org/document/8727911) | AD vs. CN:  99.36%  AD vs. MCI:  99.2%  MCI vs. CN:  99.04% |  | VGG | 2560 MRIs.  Binary classification between three classes: CN, MCI and AD. |
| MRI | [‘Differentiation of early mild cognitive impairment in brainstem MR images using multifractal detrended moving average singularity spectral features’](https://www.sciencedirect.com/science/article/pii/S1746809419303611?via%3Dihub) | EMCI vs. CN:  96.51 %  EMCI vs. MCI:  97.12%  EMCI vs. LMCI:  96.06%  EMCI vs. AD:  94.47% |  | Multifr-actal and SVM | 1055 MRIs.  Binary classification between five classes: CN, EMCI, LMCI, MCI and AD. |
| Gene expression | [‘Analysis of Blood Gene Expression Data Toward Early Detection of Alzheimer’s Disease’](https://www.medrxiv.org/content/10.1101/2021.07.26.21261147v1.full) |  | CN vs. MCI:  0.64 (RFE+ SVM)  CN vs. AD:  0.77 (LassoCV+ SVM)  MCI vs. AD:  0.62 (RFE+AdaBoost) | SVM, AdaBoo-st and KNN  with  LassoC-V and RFE ; | 713 samples(244 CN, 371 MCI and 98 AD);  Binary classification between three label:  CN, MCI and AD. |
| Gene  Expression  And  MRI | [‘Predictive classification of Alzheimer’s disease using brain imaging and genetic data’](https://www.nature.com/articles/s41598-022-06444-9) | CN vs. AD:  98%  CN vs. EMCI: 82%  CN vs. LMCI: 86%  EMCI vs. LMCI: 80%  EMCI vs. AD:88%  LMCI vs. AD: 72% |  | SVM  (Linear kernel) | 100 samples (25 CN, 25 MCI, 25 EMCI, 25 LMCI and 25 AD)  Binary classification between five classes. |
| Gene  Expression  MRI  HER(electronic health records) | [‘Multimodal deep learning models for early detection of Alzheimer’s disease stage’](https://www.nature.com/articles/s41598-020-74399-w) | DL+RF:  CN: 88%  MCI: 80%  AD: 87% |  | Multimodal deep learning model | 3-label classification: CN, MCI and AD |

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| **ANMERGE & ANM** | | | | | |
| **Datatype** | **Paper** | **Accuracy** | **ROC** | **Model** | **Notes** |
| Gene expression  (50 probes) | [‘A blood gene expression marker of early Alzheimer’s disease.’](https://content.iospress.com/articles/journal-of-alzheimers-disease/jad121363) | CN vs. AD:  0.75 |  | RF | ANM/104 AD and 104 CN (Randomly dividing AD and CN data into training and test datasets by 3:1 ratio) |
| Gene expression  (150 probes) | [‘A novel multi-tissue RNA diagnostic of healthy ageing relates to cognitive health status.’](https://genomebiology.biomedcentral.com/articles/10.1186/s13059-015-0750-x) | CN vs. AD:  ANM1: 0.73 ANM2: 0.66 |  | KNN | ANM1: 49 AD and 64 CN  ANM2: 40 AD and 71 CN |
| Gene expression  (13 probes) | [‘A pathway based classification method for analyzing gene expression for Alzheimer’s disease diagnosis.’](https://content.iospress.com/articles/journal-of-alzheimers-disease/jad150440) | CN vs. AD:  0.657 | 0.724 | RF | ANM1: 100 AD and 107 CN  ANM + DCR: 118 AD and 118 CN (ANM1 for training, ANM2 + DCR for testing) |
| Gene expression  (6 genes: Full6Set) | [‘ Systematic analysis and biomarker study for Alzheimer’s disease.’](https://www.nature.com/articles/s41598-018-35789-3) | CN vs. AD:  ANM2: 0.866  ANM1: 0.864 |  | Voting of SVM, RR and RF | ANM1 :143 AD and 104 CN;  ANM2: 102 AD and 78 CN  (ANM1 for training, ANM2 for test and vice versa) |
| Gene expression  &  MRI | [‘A Blood Gene Expression Marker of Early Alzheimer’s Disease’](https://content.iospress.com/download/journal-of-alzheimers-disease/jad121363?id=journal-of-alzheimers-disease%2Fjad121363) | Gene expression:  76%  MRI:  82% |  | RF | Only using  2 class:  CN vs. AD |