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Predicting Alzheimer's Disease Stage Transformations 12 Months in Advance using 3D Convolutional LSTM based on 3D Magnetic Resonance Images

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January 2024

TECHNICAL REPORT
METU/II-TR-2024-

Orta Doğu Teknik Üniversitesi
Enformatik Enstitüsü

3D Manyetik Rezonans Görüntülerine Dayalı 3D Evrişimsel LSTM Kullanılarak Alzheimer Hastalığı Aşamasındaki Dönüşümlerin 12 Ay Önceden Tahmin Edilmesi

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Ocak 2024

TEKNİK RAPOR
ODTÜ/II-TR-2024-

REPORT DOCUMENTATION PAGE

1. AGENCY USE ONLY (Internal Use)	**2. REPORT DATE** 25.01.2024

3. TITLE AND SUBTITLE

Predicting Alzheimer's Disease Stage Transformations 12 Months in Advance using 3D Convolutional LSTM based on 3D Magnetic Resonance Images

4. AUTHOR (S) Elifnur ERDEMİR	**5. REPORT NUMBER (Internal Use)** **METU/II-TR-2024-**

6. SPONSORING/ MONITORING AGENCY NAME(S) AND SIGNATURE(S)
Medical Informatics Master's Program, Department of Health Informatics, Informatics Institute, METU

Advisor: Assoc. Prof. Dr. Yeşim AYDIN SON Signature:

7. SUPPLEMENTARY NOTES

8. ABSTRACT (MAXIMUM 200 WORDS)

This study evaluates the ability to predict the transition from the healthy cognitive stage to the Alzheimer's stage using a 3D LSTM model. The model was trained on a data set created from MR images taken at different times in the ADNI database and its performance was evaluated using four consecutive 3D MR images. The results reveal that while the model highlights good specificity in recognizing healthy individuals, it shows low sensitivity and F1 score in predicting the transition from MCI to Alzheimer's. While the model can identify individuals remaining in the MCI stage with high sensitivity, it shows a decrease in precision and F1 score, indicating that there are false positives in this class. All in all, he study highlights the potential of the 3D LSTM model for early diagnosis of Alzheimer's disease, shedding light on future research in this field.

9. SUBJECT TERMS	**10. NUMBER OF PAGES**
Alzheimer's disease, mild cognitive impairment, early diagnosis, 3D Conv LSTM, MR imaging, ADNI Database.	**35**

LIST OF TABLES

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

Alzheimer's disease (AD), the primary cause of dementia, is a growing global health problem affecting individuals and society [1]. AD is involved in 60 to 80 percent of all dementia cases. Alzheimer's is a progressive disease marked by memory loss, difficulty with tasks, language difficulties, disorientation, poor judgment, abstract thought problems, misplacement of objects, mood swings, and loss of motivation. In 2020, 42.3 million people worldwide were affected by Alzheimer's disease, and this number is predicted to reach 81.1 million in 2040 [2, 3]. The main risk factor for Alzheimer's disease is age. The incidence of the disease doubles every 5 years after the age of 65, and 1275 new cases are diagnosed annually per 100,000 people over the age of 65 [4]. The first case of AD was reported by Alois Alzheimer in 1907, and since then, our knowledge about the pathogenesis of AD and how the disease is conceptualized has increased, but there are still no disease-modifying treatments available [3]. Current treatments for AD, donepezil, galantamine, rivastigmine, and memantine, are only symptomatic and provide modest benefit. These treatments are not a cure for Alzheimer's disease; they can only temporarily slow the progressive symptoms of the disease [5]. Diagnosing Alzheimer's disease in its early stages may help these medications be more effective. Therefore, diagnosis of Alzheimer's disease at an early stage is very important. Mild cognitive impairment (MCI) represents the early, preclinical, transitional phase between healthy aging and AD and is a key stage at which it may be possible to delay progression to dementia [6]. Patients with MCI, particularly those with primary memory impairments, are significantly more likely to progress to probable AD, with an annual conversion rate of 10–15% [7]. Magnetic resonance imaging is an integral part of the clinical evaluation of patients with suspected AD and MCI. Several studies have shown that MRI estimates of tissue damage or loss in characteristically sensitive brain regions such as the hippocampus and entorhinal cortex predict the progression of MCI to AD [8].

This study aims to predict the transition from the healthy cognitive stage (MCI) to the mild cognitive stage (MCI) and the transition from MCI to AD 12 months in advance with sequential MRI for the early diagnosis of Alzheimer's disease. For the study, MRIs of patients taken at different times were selected from the ADNI database, and the ADNI transformation data set was prepared with subjects who were healthy and remained healthy at consecutive times, and subjects who were healthy but remained healthy. A 3D Convolutional LSTM model was created for each subject, trained on 3D MR images taken four consecutive times. To test this model, three consecutive 3D MRI images of the subjects were given, and it was determined whether they would be healthy or stay healthy in the next sequence, that is, 6 to 12 months later, whether they would be MCI and remain MCI, whether they would transition from healthy to MCI phase, or whether they would have MCI and turn into AD. An attempt was made to predict.

This report presents the model that predicts the transition from healthy to AD stages with a 3D LSTM model. The sections that form the basis of the study are:

1. Introduction: In this section, a broad background about AD and MCI is presented and basic concepts are defined. In addition, the purpose of the study is stated.

2. Literature Reviews: In this section, previous studies on the subject are summarized.

3. Materials and Methods: This section describes the database used and the data set created from this database. It presents the pre-processing steps for MRI in this dataset. It provides detailed information about the model. Finally, the test metrics of the model are explained.

4. Result: Test results of the model are shared.

5. Discussion and Future Works: Test results are evaluated in this section and future studies are presented.

2. LITERATURE REVIEWS

In the study by Feng et al. [9], 3D-CNN (3D convolutional neural network) and fully stacked bidirectional long short-term memory (FSBi-) obtained from magnetic resonance imaging (MRI) and positron emission tomography (PET) data were used for the diagnosis of Alzheimer's disease. A deep learning framework combining LSTM techniques has been developed. The study uses MRI and PET data from 93 patients with Alzheimer's disease (AD), 76 progressive mild cognitive impairment (pMCI), 128 stable mild cognitive impairment (sMCI), and 100 normal controls (NC) from the ADNI dataset. 3D-CNN was used to obtain feature maps from MRI and PET data. Then, these feature maps were processed with FSBi-LSTM to increase the performance of the model. As a result, the tests performed on the ADNI data set show that an average accuracy of 94.82% between AD and NC, 86.36% between pMCI and NC, and 65.35% between sMCI and NC was achieved. These results show that success has been achieved by surpassing similar algorithms in the literature. The study by Feng et al effectively classifies AD, pMCI, sMCI, and NC classes. However, the temporal changes of AD stages were not focused on, only classification was made.

Sevilla-Salcedo et al. [10] used SSHIBA (Structured Semi-supervised Hierarchical Bayesian) to predict the future evolution of individuals at risk of Alzheimer's disease. In their study, they used data showing the longitudinal progression of early MCI and AD in the TADPOLE Challenge dataset obtained from the ADNI database and published. Missing values were observed to be high in these data because not all variables were obtained at each visit and participants did not visit every 6 months. To overcome this problem, they developed a new Bayesian Variational inference framework that can simultaneously estimate missing values and combine information from different views.

As a result, using ventricular volume and ADAS score multimodally, AD progression 6 months ago was obtained with an MAE score of 3.407. This study predicts disease progression, like my study, but the temporal data does not include 3D MRI images and uses numerical values of ventricular volumes obtained from cross-sectional MRI images. Converting MR images to digital data is laborious and time-consuming, and I used 3D images in my study to avoid losing any cross-sections.

Tomassini and colleagues [11] have developed an end-to-end 3D ConvLSTM-based model designed to provide diagnosis of AD from full-resolution whole-brain MRI scans to enable the diagnosis of Alzheimer's disease. With their proposed model, it was applied to 427 full resolution whole brain MRI scans from OASIS and ADNI databases. First, the skull was removed, and the brain was extracted from the 3D MRI images obtained from two different databases, and then the images were aligned. The results show that the proposed model is successful in distinguishing AD from cognitively normal (CN) patients. 86% classification accuracy, 96% sensitivity, 88% f1-score and 93% AUC were achieved in the test data. Although a similar model was used in my study, LSTM was not used to learn the sections of 3D MR images, but to estimate the transformation in the disease stage by looking at historical information. The study by Tomassini et al. classifies only AD and healthy.

Studies involving deep learning models on 3D MRI are generally used for the binary classification of AD and normal, and these studies are summarized in Table 1.

Table 1. Comparison of Related Studies

Study	**Image Distribution**	**Method**	**AD/NC Classification**		
	AD / NC		**ACC (%)**	**SENS (%)**	**SPE (%)**
[12]	97 / 119	3D DenseNet	88.9	86.6	90.8
[13]	299 / 330	3D CNN	93.2	95.0	89.8
[14]	319 / 324	Self-attention	98.0	97.7	98.2
[15]	188 / 209	2.5D CNN	79.90	84.00	74.80
[16]	476 / 705	ViT-Bi-LSTM	95.678	95.5	-

3. MATERIALS AND METHODS

3.1 Dataset

3.1.1 The Alzheimer's disease neuroimaging initiative (ADNI)

ADNI [17] is a comprehensive research initiative on Alzheimer's disease and related neurological disorders. This initiative focuses on supporting early diagnosis of disease, particularly using neuroimaging techniques such as magnetic resonance imaging (MRI). ADNI has created a comprehensive dataset that includes data from a variety of disciplines to understand the development of Alzheimer's disease and cognitive disorders. This dataset includes information from the clinical, neuropsychological, genetic, and imaging fields, providing researchers with valuable perspectives on disease progression and affected brain regions.

3.1.2 Created ADNI Conversion Data Set

The prepared dataset was created from image data provided by the Alzheimer's Disease Neuroimaging Initiative (ADNI). Data was selected using the file containing information on all data from the ADNI database. Figure 1 shows some data in this file as an example. The month in which the MRI images of the subject with patient ID '011_S_0326' were taken, the date they were taken, the diagnosis made (CN: 1, MCI: 2, AD: 3) and whether there is a change in the stage of the disease are included. Accordingly, it can be information that this subject was in the MCI phase at the 12th, 18th and 24th months and passed to the AD phase at the 36th month. The data in the specified file was used as stated in the example, and the appropriate image data was selected and divided into 4 different classes for Created ADNI Conversion Data Set:

1. **CNtoCN:** Includes the subject's first, 6th month, 12th and 24th month MRI images. These 4 images belong to the CN phase.
2. **CNtoMCI:** Contains images of the subject's 3 consecutive CN stages and the 4th image belonging to the MCI stage.
3. **MCItoMCI:** Includes the first, 6th month, 12th month and 18th month images of the subject. These 4 images also belong to the CN phase.
4. **MCItoAD:** Contains images of 3 consecutive MCI stages of the subject and the AD stage in the 4th image.

Phase	PTID	VISCODE	VISDATE	DXCURREN	DXCONV
ADNI1	011_S_0326	m12	2007-04-05	2	ADNI1
ADNI1	011_S_0326	m18	2007-10-29	2	ADNI1
ADNI1	011_S_0326	m24	2008-04-04	2	ADNI1
ADNI1	011_S_0326	m36	2009-03-30	3	ADNI1
ADNI1	002_S_0295	m36	2009-05-26	1	0
ADNI1	002_S_0295	m48	2010-05-13	1	0

Figure 1. Example of the ADNI database information

Information about the created dataset is included in Appendix A. The "Image Data ID" column in this information indicates the unique ID of each image. The "Subject" column contains the individual's identifying information, and the "Group" column refers to the group in which the individual is located; for example, specified as "MCItoMCI". The "Sex" column indicating gender is designated as "F" (Female) or "M" (Male). The "Age" column contains the individual's age information, while the "Visit" column indicates the visit number. The "Acq Date" column, which indicates the "date on which the image was obtained", and the "Train/Test" column, which indicates the label indicating whether the data set will be used in the training or testing phase. All images are T1-weighted MRI in all examples. All image types are MPRAGE" and all samples are taken as "Original".

3.2 Preprocessing of MR Images

3.2.1 Converting MRI to 3D

MR images downloaded within the scope of the created data set are available as 2-dimensional sequences in '.dcm' format under the MPRAGE protocol. For each image, the sequences were sorted, and the pixel arrays were combined to create a 3D volume of (128, 128, 128) dimensions. For these 3D images, they are saved in NIfTI format.

3.2.2 Brain Extraction in 3D MRI Images

Removing the skull from the image and isolating the brain in MRI images is an important step for brain analysis. Because removing other tissues can help make the results obtained with the deep learning-based model more specific and meaningful. In this study, FSL Brain Extraction Tool (BET) [18] was used for brain extraction from MR images. "FSL BET" (Brain Extraction Tool) is a tool used to isolate brain tissue from brain images. FSL (FMRIB Software Library) is a collection of tools and software used in neuroscience research. FSL was developed by a group at the University of Oxford called FMRIB (Functional Magnetic Resonance Imaging of the Brain). FSL contains a variety of tools and source code that neuroscientists can use for magnetic resonance imaging (MRI) and brain imaging analyses. The main function of BET is to identify brain tissue in a brain image and distinguish this tissue from other surrounding tissues. Figure 2 shows the 3D rendered MRI image of patient "002_S_4270" with "60581" image ID. Figure 3 shows the image of the same patient in which brain isolation was performed with FSL BET.

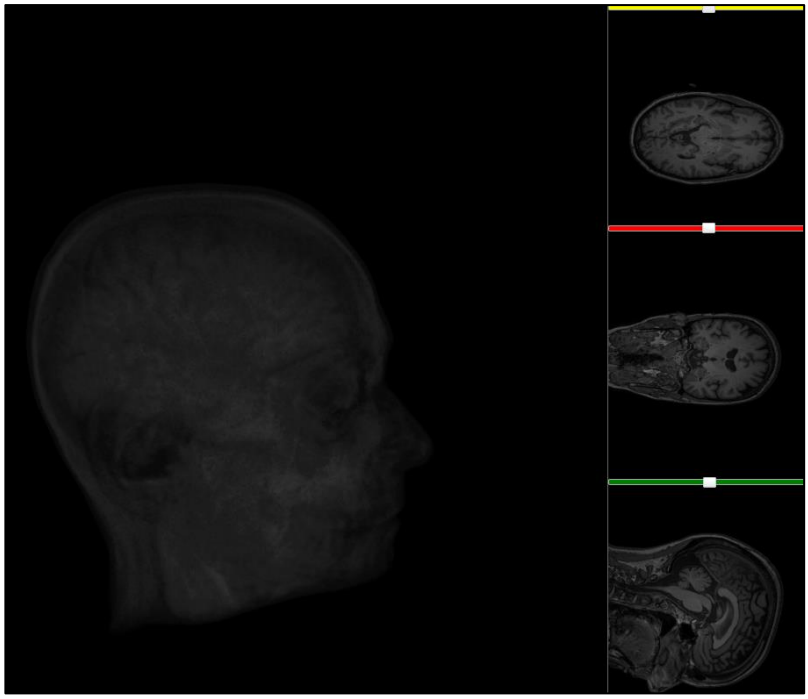

Figure 2. 3D rendered MRI image of the patient

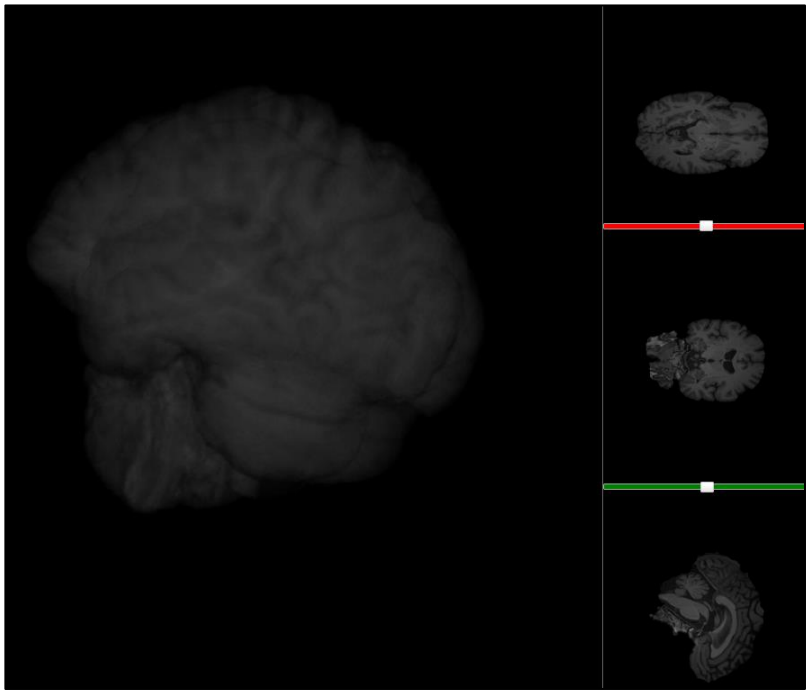

Figure 3.The patient in which brain isolation was performed with FSL BET

3.3 Model

3D Convolutional Long Short-Term Memory (3D ConvLSTM) is a deep learning model used to process 3D volumetric data types by combining spatial and temporal features [19]. This model includes a combination of Convolutional Neural Networks (CNN) and Long Short-Term Memory (LSTM) structures.

In 3D CNN, the convolution process captures local patterns by hovering the filters (kernel) over the input tensor. 3D CNNs consist of convolution layers followed by pooling layers to reduce their spatial size [20]. Figure 3 shows an example 3D volume and 2 3D kernels. S, filter by Equation 1; I, input tensor; W, H, D are filter sizes. This equation is the mathematical formulation of 3D convolution.

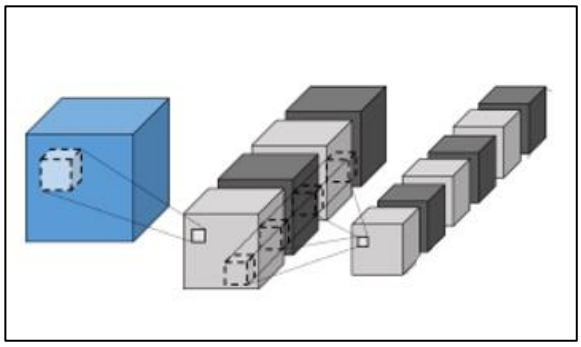

Figure 4. Example visualization of 3D CNN [20]

$$(\mathrm{S} * \mathrm{I})(\mathrm{x},\mathrm{y},\mathrm{z}) = \sum_{i=0}^{W-1}\sum_{j=0}^{H-1}\sum_{k=0}^{D-1} I\,(x+i, y+j, z+k)\cdot S(i,j,k) \qquad \text{(Eq. 1)}$$

The LSTM model can solve problems involving time series [21]. LSTM enables learning difference information in time series and detecting changes in temporal remote sensing data. The LSTM structure is shown in Figure 5. An LSTM cell is a recurrent neural network (RNN) unit designed to capture long connections over time. It consists of three gates (input, forget, exit) and a cell state. The forget gate of the LSTM cell is described in Equation 2, the input gate in Equation 3, the candidate cell state in Equation 4, the cell

state in Equation 5, the output gate in Equation 6, and the hidden state in Equation 7 [21, 22]. xt is input entry time at t; W0, Wf, Wi are weight matrices.

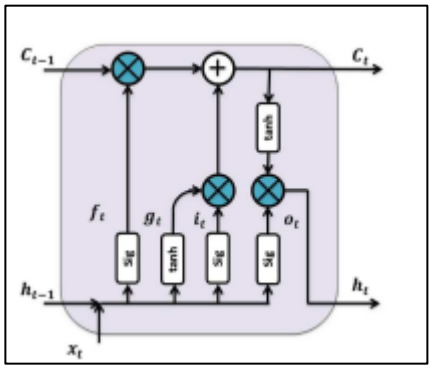

Figure 5. LSTM structure [22]

$$f_t = \sigma(W_f \cdot [h_t - 1, x_t] + b_f) \quad \text{(Eq. 2)}$$

$$i_t = \sigma(W_i \cdot [h_t - 1, x_t] + b_i) \quad \text{(Eq. 3)}$$

$$\tilde{C}_t = \tanh(W_C \cdot [h_t - 1, x_t] + b_C) \quad \text{(Eq. 4)}$$

$$Ct = ft \cdot Ct - 1 + it \cdot \tilde{C}_t \quad \text{(Eq. 5)}$$

$$o_t = \sigma(W_o \cdot [h_t - 1, x_t] + b_o) \quad \text{(Eq. 6)}$$

$$h_t = o_t \cdot \tanh(C_t) \quad \text{(Eq. 7)}$$

In 3D ConvLSTM, 3D convolution layers are used to capture spatial features and LSTM cells are used to capture temporal dependencies. The 3D ConvLSTM cell processes 3D spatiotemporal data and combines 3D convolutional and LSTM operations. This combined equation is shown in Equation 8.

$$(\mathrm{S} * \mathrm{I})(\mathrm{x}, \mathrm{y}, \mathrm{z}, \mathrm{t}) = \sum_{i=0}^{W-1} \sum_{j=0}^{H-1} \sum_{k=0}^{D-1} \sum_{l=0}^{T-1} I\,(x + i, y + j, z + k, t + l) \quad \text{(Eq. 8)}$$

In the study, 3D MR images from 4 different times were first passed through 3D convolution layers and their temporal dependencies were captured. Then, the temporal dependencies of images belonging to 4 different consecutive times were given as input to LSTM.

The model used for this study is shown in detail in Table 2. The input layer of 3D Conv LSTM receives 3D MRI images of size 128x128x128. 3D convolution layers were used to extract features of 3D MRI images. Normalization layers placed at the end of these layers were used to stabilize and accelerate the learning process. Convolution and normalization steps in successive time steps were performed with time-distributed layers. Dropout layers randomly close connections during training to prevent overfitting. LSTM layers use hidden states in successive time steps to store information on time series. A flattening layer is added to vectorize the LSTM output. Fully connected layers extract higher features and find the resulting class.

Table 2. The model used for this study

Layer (type)	**Output Shape**	**Number of Parameters**
input_1 (InputLayer)	(None, 128, 128, 128,1)	0
conv3d (Conv3D)	multiple	55.312
batch_normalization	multiple	64
time_distributed	multiple	0
dropout	multiple	0
conv3d_1 (Conv3D)	multiple	13.856
batch_normalization_1	multiple	128
time_distributed_1	multiple	0
dropout_1	multiple	0
lstm (LSTM)	multiple	4.198.528
lstm_1 (LSTM)	multiple	8.320
time_distributed_2	multiple	0
flatten_1	multiple	0
dense	multiple	4.128
batch_normalization_2	multiple	128
dropout_2	multiple	0
dense_1	multiple	132

4. RESULTS

To train the model used in the study, a total of 564 3D MRI images of 141 different patients, at 4 different consecutive times, were used. These images were randomly divided into 80% training and 20% validation parts during the training phase. The number of patient distribution according to the classes mentioned in Table 4 is not equal, MCItoMCI class has quite a lot of data. Therefore, to balance the data, augmentation was applied to other classes until the amount of data in the MCItoMCI class was equal. 3D MR images were rotated at random angles, reflected on random axes, and augmented by changing the brightness and contrast settings. In addition, train operations were carried out with 200 epoch and 8 batch number values.For the test, 3 sequential MRI images of 24 patients in total, 5 from CNtoCN class, 5 from CNtoMCI class, 5 from MCItoAD class and 9 from MCItoMCI class, were used. In short, for train, the model was trained with 4 sequential images of a patient, and for test, 3 sequential images were given, and it was enabled to make class prediction by looking at the temporal changes of 3 images without giving the 4th sequential image.

Table 3. Data distrubution of the dataset

Class	**CNtoCN**	**CNtoMCI**	**MCItoAD**	**MCItoMCI**
Train	29	20	22	44
Test	5	5	5	9

The model loss chart was used to examine the training and validation performance of the model. In this chart, train loss shows the loss values after each training round. The low loss indicates how well the model learns the training data. Validation loss shows the validation loss in each epoch against data that the model does not see. As the training loss decreases, the validation loss also decreases, which explains that the model has learned well. The loss graph obtained as a result of the model's experiment is shown in Figure 6. Five different metrics were used as performance criteria to evaluate the test results. Accuracy, which is the ratio of correctly predicted examples to all examples; sensitivity, which is the proportion of samples correctly classified as positive out of all samples labeled positive; specificity, which is the ratio of predicted negatives to true negative samples; precision, which is the proportion of samples actually classified as positive out of all samples predicted as positive; and F1 Score, which is the harmonic average of sensitivity values, are the test metrics used [23]. These metrics are found with the confusion matrix and Figure 7 shows the confusion matrix obtained as a result of the test and Figure 8 shows normalized confusion matrix. In addition, the values of the success metrics are presented in Table 4.

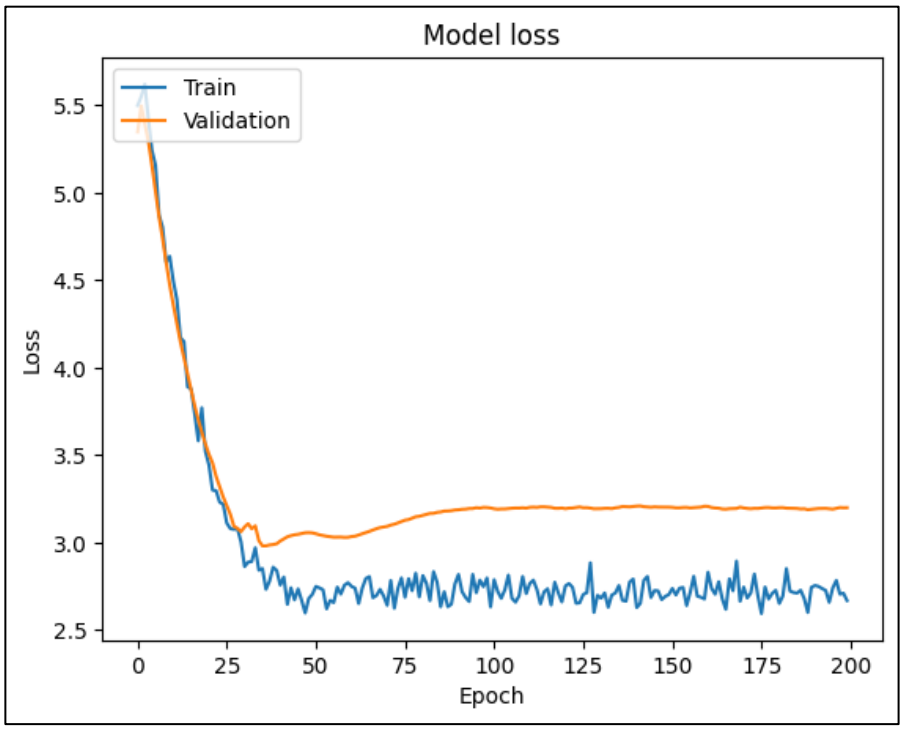

Figure 6. Model loss graph

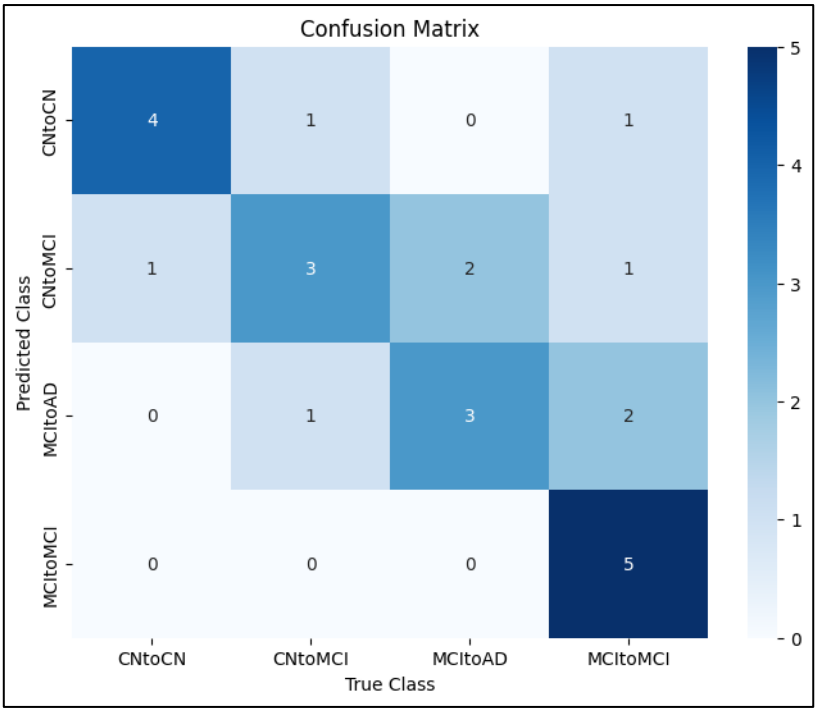

Figure 7. The confusion matrix

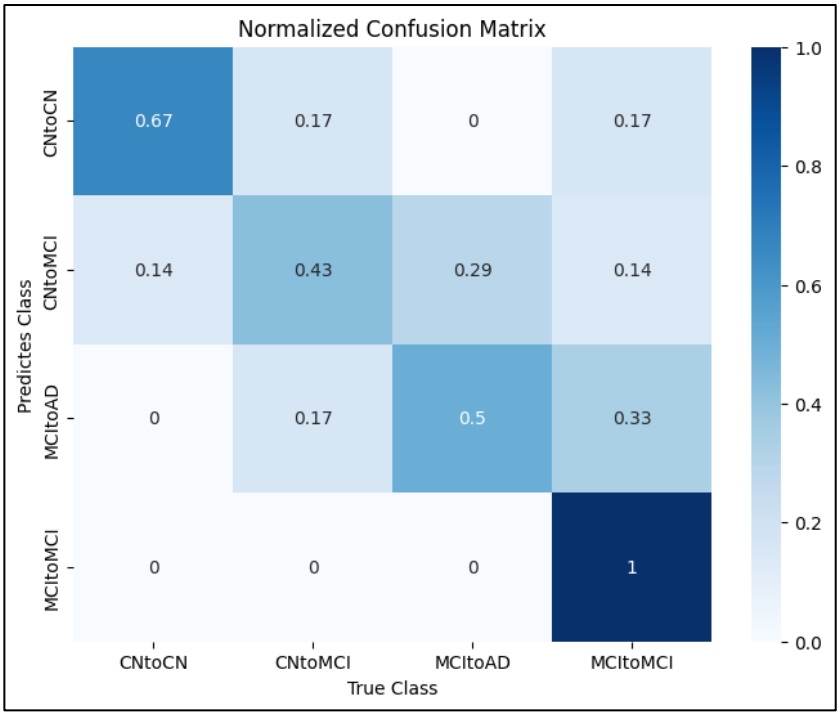

Figure 8. The normalized confusion matrix

Table 4. Test results

Classes	Accuracy	Sensitivity	Specificity	Precision	F1 Score
CNtoCN	0.8750	0.6667	0.9444	0.8000	0.7272
CNtoMCI	0.7500	0.4285	0.8824	0.6000	0.5000
MCItoAD	0.7917	0.5000	0.8888	0.6000	0.5455
MCItoMCI	0.8333	1.0000	0.7894	0.5556	0.7143

If the metrics given for performance evaluation are analyzed, the CNtoCN class succeeds in correctly recognizing healthy individuals with a high specificity rate (94.44%). However, the sensitivity rate (66.67%) and F1 score (72.72%) are lower than other metrics, indicating that it tends to miss some healthy individuals. The CNtoMCI class has a low sensitivity rate (42.85%), thus achieving poor success in detecting mild cognitive impairment. The MCItoAD class sensitivity rate (50.00%) and F1 score (54.55%) are lower than other measures, indicating that it tends to miss the transition to Alzheimer's. MCItoMCI has a high sensitivity rate (100.00%) in correctly recognizing the class. However, the accuracy rate (55.56%) and F1 score (71.43%) are lower than other measures, indicating that this class tends to incorrectly classify some cases without mild cognitive impairment.

Overall accuracy is given in equation 9. Looking at the confusion matrix in Figure 6, the class to which 15 of the 24 test subjects belonged was found to be correct. In this case, using Equation 9, the total accuracy was found to be 62.5%.

$$Total\ accuracy\ = \frac{Total\ correct\ classification}{Total\ number\ of\ samples} = \frac{15}{24} \qquad \text{(Eq. 8)}$$

5. DISCUSSION

In the study, a new data set was created from the ADNI database to predict the stages of AD disease 6 to 12 months in advance. The images in this dataset were first rendered three-dimensional and then isolated from the brain skull with the FSL BET tool. A 3D Convolutional LSTM model was created to predict time-varying 3D MRI data. In the data set containing CNtoCN, CNtoMCI, MCItoAD and MCItoMCI classes, CNtoCN, CNtoMCI, CNtoMCI were increased to the data number of MCItoMCI, which is the majority class during train operations. The model loss table created as a result of the training and validation stages is promising. Training and validation losses are initially high, meaning that the model cannot immediately learn certain patterns or relationships in the data set. The fact that the training loss decreases over time indicates that the model performs better and better on the training data. This reduction in training and validation losses reveals that the model has been optimized and is beginning to better understand more complex data structures.

While the model exhibits good specificity in recognizing individuals that remain healthy, the sensitivity and F1 score are lower, which may indicate that some healthy individuals will inadvertently change phase. Although the specificity rate is high, the low sensitivity and F1 score indicate a poor performance in predicting MCI stage from healthy. The model showed low sensitivity and F1 score for predicting the transition from MCI to AD, indicating that it tends to miss the transition to AD. Although the model finds MCI remaining subjects with high sensitivity, the precision and F1 score are low, indicating that there are false positives in the class.

Model performance may depend on the quality and variety of 3D MR images used. If there are under-represented cases or variations in the data set, the model may not learn these cases correctly. The data in the MCItoMCI class is the majority, minority classes have been amplified. However, real data may not be as effective as real data for training the model. The architectural parameters of the 3D Convolutional LSTM model, that is, factors such as the number of layers, filter sizes, and learning rate, determine the model's ability to learn and generalize the data. The model could not be deepened much due to limited GPU access, which may have negatively affected model performance.

As a result, the challenging task of predicting conversions to the AD stage from 3D MR images 12 months in advance with 62.5% total accuracy was attempted. The 62.5% accuracy value indicates an average performance and shows that promising results will be achieved with new studies on this challenging task.

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APPENDIX A

Num	Image Data ID	Subject	Group	Sex	Age	Visit	Acq Date	Train/Test
1	I299155	002_S_4262	CNtoMCI	F	73	v05	4/19/2012	train
2	I397601	002_S_4262	CNtoMCI	F	75	v21	11/06/2013	train
3	I346110	002_S_4262	CNtoMCI	F	74	v11	10/25/2012	train
4	I259653	002_S_4262	CNtoMCI	F	73	v02	10/05/2011	train
5	I575600	002_S_4270	CNtoMCI	F	79	v41	12/04/2015	train
6	I346803	002_S_4270	CNtoMCI	F	76	v11	11/14/2012	train
7	I301756	002_S_4270	CNtoMCI	F	75	v05	5/04/2012	train
8	I398531	002_S_4270	CNtoMCI	F	77	v21	11/14/2013	train
9	I92660	003_S_0908	MCItoMCI	F	64	m12	10/25/2007	test
10	I104926	003_S_0908	MCItoMCI	F	65	m18	5/06/2008	test
11	I54988	003_S_0908	MCItoMCI	F	63	sc	9/12/2006	test
12	I50620	003_S_0908	MCItoMCI	F	64	m06	4/23/2007	test
13	I112906	003_S_1122	MCItoMCI	F	78	m18	7/03/2008	train
14	I61258	003_S_1122	MCItoMCI	F	77	m06	7/20/2007	train
15	I32044	003_S_1122	MCItoMCI	F	77	sc	12/06/2006	train
16	I89028	003_S_1122	MCItoMCI	F	78	m12	1/30/2008	train
17	I499406	009_S_0842	CNtoMCI	M	79	v06	10/24/2011	test
18	I343566	009_S_0842	CNtoMCI	M	80	v11	11/01/2012	test
19	I448581	009_S_0842	CNtoMCI	M	82	v31	10/14/2014	test
20	I499395	009_S_0842	CNtoMCI	M	81	v21	10/28/2013	test
21	I346460	009_S_4337	CNtoMCI	M	73	v11	11/12/2012	train
22	I265542	009_S_4337	CNtoMCI	M	72	v02	11/07/2011	train
23	I308593	009_S_4337	CNtoMCI	M	73	v05	6/06/2012	train
24	I283124	009_S_4337	CNtoMCI	M	72	v04	2/06/2012	train
25	I317454	009_S_4359	CNtoMCI	M	77	v05	7/23/2012	train
26	I358953	009_S_4359	CNtoMCI	M	78	v11	2/13/2013	train
27	I405453	009_S_4359	CNtoMCI	M	79	v21	1/16/2014	train
28	I633466	009_S_4359	CNtoMCI	M	81	v41	2/15/2016	train
29	I424035	009_S_4612	CNtoCN	F	71	v21	4/30/2014	test
30	I369843	009_S_4612	CNtoCN	F	70	v11	5/01/2013	test
31	I294222	009_S_4612	CNtoCN	F	69	v02	3/29/2012	test
32	I339678	009_S_4612	CNtoCN	F	69	v05	10/11/2012	test
33	I7721	011_S_0022	CNtoMCI	M	63	sc	10/10/2005	train

34	I78416	011_S_0022	CNtoMCI	M	65	m24	10/22/2007	train
35	I16534	011_S_0022	CNtoMCI	M	64	m06	4/20/2006	train
36	I27231	011_S_0022	CNtoMCI	M	64	m12	10/19/2006	train
37	I46971	011_S_0241	MCItoMCI	M	83	m12	3/26/2007	train
38	I11812	011_S_0241	MCItoMCI	M	82	sc	3/10/2006	train
39	I193550	011_S_0241	MCItoMCI	M	83	m18	10/04/2007	train
40	I25290	011_S_0241	MCItoMCI	M	82	m06	9/27/2006	train
41	I49108	011_S_0326	MCItoAD	M	78	m12	4/11/2007	train
42	I100759	011_S_0326	MCItoAD	M	79	m24	4/04/2008	train
43	I78179	011_S_0326	MCItoAD	M	79	m18	10/17/2007	train
44	I140635	011_S_0326	MCItoAD	M	80	m36	4/06/2009	train
45	I19199	011_S_0362	MCItoAD	F	72	m12	4/16/2007	test
46	I193571	011_S_0362	MCItoAD	F	72	m18	10/23/2007	test
47	I141285	011_S_0362	MCItoAD	F	74	m36	4/07/2009	test
48	I103555	011_S_0362	MCItoAD	F	73	m24	4/22/2008	test
49	I98960	011_S_0856	MCItoMCI	M	62	m18	3/18/2008	train
50	I76347	011_S_0856	MCItoMCI	M	61	m12	9/25/2007	train
51	I47529	011_S_0856	MCItoMCI	M	61	m06	3/29/2007	train
52	I24603	011_S_0856	MCItoMCI	M	60	sc	9/15/2006	train
53	I55687	011_S_1080	MCItoMCI	M	82	m06	5/23/2007	train
54	I30924	011_S_1080	MCItoMCI	M	82	sc	11/22/2006	train
55	I91098	011_S_1080	MCItoMCI	M	83	m12	12/05/2007	train
56	I109706	011_S_1080	MCItoMCI	M	83	m18	6/13/2008	train
57	I239736	011_S_4075	CNtoCN	M	73	v02	6/10/2011	train
58	I272099	011_S_4075	CNtoCN	M	74	v05	12/14/2011	train
59	I311933	011_S_4075	CNtoCN	M	75	v11	6/22/2012	train
60	I375671	011_S_4075	CNtoCN	M	75	v21	6/07/2013	train
61	I642405	012_S_4026	CNtoCN	M	76	v21	6/10/2013	train
62	I238532	012_S_4026	CNtoCN	M	74	v02	5/26/2011	train
63	I308385	012_S_4026	CNtoCN	M	75	v11	6/05/2012	train
64	I274422	012_S_4026	CNtoCN	M	74	v05	12/07/2011	train
65	I56896	013_S_0325	MCItoAD	F	72	m12	6/12/2007	train
66	I85153	013_S_0325	MCItoAD	F	72	m18	12/11/2007	train
67	I110198	013_S_0325	MCItoAD	F	73	m24	6/19/2008	train
68	I35747	013_S_0325	MCItoAD	F	71	m06	12/14/2006	train
69	I86472	013_S_1120	MCItoMCI	F	79	m12	12/20/2007	train
70	I30339	013_S_1120	MCItoMCI	F	78	sc	11/22/2006	train
71	I56188	013_S_1120	MCItoMCI	F	78	m06	6/05/2007	train

72	I112623	013_S_1120	MCItoMCI	F	79	m18	6/03/2008	train
73	I65527	013_S_1186	MCItoMCI	M	84	m06	8/06/2007	train
74	I90004	013_S_1186	MCItoMCI	M	84	m12	2/07/2008	train
75	I37721	013_S_1186	MCItoMCI	M	83	sc	1/29/2007	train
76	I115301	013_S_1186	MCItoMCI	M	85	m18	8/04/2008	train
77	I421132	013_S_4580	CNtoCN	F	72	v21	4/21/2014	train
78	I340741	013_S_4580	CNtoCN	F	70	v05	10/15/2012	train
79	I368953	013_S_4580	CNtoCN	F	71	v11	4/23/2013	train
80	I296859	013_S_4580	CNtoCN	F	70	v02	4/05/2012	train
81	I300089	013_S_4616	CNtoCN	M	85	v02	4/19/2012	train
82	I368930	013_S_4616	CNtoCN	M	86	v11	4/25/2013	train
83	I343930	013_S_4616	CNtoCN	M	85	v05	10/25/2012	train
84	I421732	013_S_4616	CNtoCN	M	87	v21	4/24/2014	train
85	I365627	014_S_4576	CNtoCN	F	72	v11	4/04/2013	train
86	I289484	014_S_4576	CNtoCN	F	71	v02	3/08/2012	train
87	I336069	014_S_4576	CNtoCN	F	71	v05	9/20/2012	train
88	I419803	014_S_4576	CNtoCN	F	73	v21	4/09/2014	train
89	I94330	016_S_0702	MCItoMCI	M	87	m18	2/27/2008	train
90	I41298	016_S_0702	MCItoMCI	M	86	m06	2/21/2007	train
91	I81027	016_S_0702	MCItoMCI	M	86	m12	11/06/2007	train
92	I116560	016_S_0702	MCItoMCI	M	87	sc	7/24/2006	train
93	I20362	016_S_0769	MCItoMCI	M	62	sc	8/02/2006	train
94	I95313	016_S_0769	MCItoMCI	M	64	m18	3/03/2008	train
95	I69413	016_S_0769	MCItoMCI	M	63	m12	8/20/2007	train
96	I434606	016_S_0769	MCItoMCI	M	62	m06	3/19/2007	train
97	I28799	016_S_1028	MCItoMCI	F	77	sc	11/02/2006	train
98	I108499	016_S_1028	MCItoMCI	F	79	m18	5/29/2008	train
99	I61997	016_S_1028	MCItoMCI	F	78	m06	7/09/2007	train
100	I83930	016_S_1028	MCItoMCI	F	78	m12	11/29/2007	train
101	I61593	016_S_1092	MCItoMCI	M	75	m06	7/16/2007	train
102	I434613	016_S_1092	MCItoMCI	M	75	m12	12/17/2007	train
103	I32638	016_S_1092	MCItoMCI	M	74	sc	12/11/2006	train
104	I115201	016_S_1092	MCItoMCI	M	76	m18	7/31/2008	train
105	I31582	016_S_1117	MCItoMCI	F	69	sc	12/01/2006	test
106	I66873	016_S_1117	MCItoMCI	F	70	m06	8/02/2007	test
107	I85557	016_S_1117	MCItoMCI	F	70	m12	12/18/2007	test
108	I117199	016_S_1117	MCItoMCI	F	71	m18	8/28/2008	test
109	I62010	016_S_1121	MCItoAD	F	57	m06	6/28/2007	train

110	I114056	016_S_1121	MCItoAD	F	58	m18	7/21/2008	train
111	I132087	016_S_1121	MCItoAD	F	58	m24	12/15/2008	train
112	I85146	016_S_1121	MCItoAD	F	57	m12	12/14/2007	train
113	I119317	016_S_1326	MCItoAD	M	68	m18	10/06/2008	train
114	I99756	016_S_1326	MCItoAD	M	67	m12	3/27/2008	train
115	I174005	016_S_1326	MCItoAD	M	70	m36	5/12/2010	train
116	I140319	016_S_1326	MCItoAD	M	68	m24	4/01/2009	train
117	I56470	018_S_0406	MCItoAD	M	79	m12	6/08/2007	train
118	I109859	018_S_0406	MCItoAD	M	80	m24	6/17/2008	train
119	I88684	018_S_0406	MCItoAD	M	80	m18	1/25/2008	train
120	I148501	018_S_0406	MCItoAD	M	81	m36	7/08/2009	train
121	I134491	020_S_0883	CNtoMCI	F	78	m24	1/26/2009	train
122	I54541	020_S_0883	CNtoMCI	F	77	m06	5/14/2007	train
123	I86857	020_S_0883	CNtoMCI	F	77	m12	1/08/2008	train
124	I159693	020_S_0883	CNtoMCI	F	79	m36	11/20/2009	train
125	I54534	020_S_0899	CNtoMCI	F	81	m06	5/14/2007	train
126	I134807	020_S_0899	CNtoMCI	F	82	m24	1/26/2009	train
127	I159479	020_S_0899	CNtoMCI	F	83	m36	11/16/2009	train
128	I86866	020_S_0899	CNtoMCI	F	81	m12	1/09/2008	train
129	I413241	022_S_4196	CNtoCN	M	79	v02	9/13/2011	train
130	I337410	022_S_4196	CNtoCN	M	80	v11	9/28/2012	train
131	I775819	022_S_4196	CNtoCN	M	81	v21	10/11/2013	train
132	I294195	022_S_4196	CNtoCN	M	79	v05	3/27/2012	train
133	I166800	023_S_0061	CNtoMCI	F	81	m48	2/25/2010	train
134	I283530	023_S_0061	CNtoMCI	F	83	v06	2/07/2012	train
135	I217232	023_S_0061	CNtoMCI	F	82	m60	2/10/2011	train
136	I358377	023_S_0061	CNtoMCI	F	84	v11	2/06/2013	train
137	I67571	023_S_0126	MCItoAD	F	79	m18	8/14/2007	train
138	I46263	023_S_0126	MCItoAD	F	79	m12	3/21/2007	train
139	I94345	023_S_0126	MCItoAD	F	80	m24	2/29/2008	train
140	I137528	023_S_0126	MCItoAD	F	81	m36	3/03/2009	train
141	I42172	023_S_0217	MCItoAD	F	85	m12	3/02/2007	train
142	I92505	023_S_0217	MCItoAD	F	86	m24	2/25/2008	train
143	I20566	023_S_0217	MCItoAD	F	84	m06	8/15/2006	train
144	I65540	023_S_0217	MCItoAD	F	85	m18	8/07/2007	train
145	I77180	023_S_0331	MCItoAD	F	66	m18	10/09/2007	train
146	I141446	023_S_0331	MCItoAD	F	68	m36	4/10/2009	train
147	I45270	023_S_0331	MCItoAD	F	66	m12	3/19/2007	train

148	I99775	023_S_0331	MCItoAD	F	67	m24	3/28/2008	train
149	I12726	023_S_0376	MCItoMCI	M	71	sc	4/03/2006	train
150	I26699	023_S_0376	MCItoMCI	M	71	m06	10/19/2006	train
151	I45804	023_S_0376	MCItoMCI	M	72	m12	3/20/2007	train
152	I78564	023_S_0376	MCItoMCI	M	72	m18	10/25/2007	train
153	I49102	023_S_0388	MCItoAD	M	72	m12	4/13/2007	train
154	I28991	023_S_0388	MCItoAD	M	72	m06	11/06/2006	train
155	I79894	023_S_0388	MCItoAD	M	73	m18	10/30/2007	train
156	I102919	023_S_0388	MCItoAD	M	73	m24	4/16/2008	train
157	I56614	023_S_0604	MCItoAD	M	88	m12	6/11/2007	train
158	I84641	023_S_0604	MCItoAD	M	88	m18	12/11/2007	train
159	I32982	023_S_0604	MCItoAD	M	87	m06	12/12/2006	train
160	I114830	023_S_0604	MCItoAD	M	89	m24	7/30/2008	train
161	I87156	023_S_0625	MCItoMCI	M	78	m18	1/11/2008	train
162	I60164	023_S_0625	MCItoMCI	M	77	m12	7/16/2007	train
163	I41733	023_S_0625	MCItoMCI	M	77	m06	2/27/2007	train
164	I17447	023_S_0625	MCItoMCI	M	76	sc	6/23/2006	train
165	I71798	023_S_0855	MCItoMCI	M	77	m12	9/05/2007	train
166	I23855	023_S_0855	MCItoMCI	M	76	sc	9/05/2006	train
167	I44875	023_S_0855	MCItoMCI	M	76	m06	3/15/2007	train
168	I99179	023_S_0855	MCItoMCI	M	77	m18	3/21/2008	train
169	I99669	023_S_0887	MCItoAD	F	75	m18	3/27/2008	train
170	I47603	023_S_0887	MCItoAD	F	74	m06	3/29/2007	train
171	I120100	023_S_0887	MCItoAD	F	76	m24	10/10/2008	train
172	I76811	023_S_0887	MCItoAD	F	75	m12	10/04/2007	train
173	I55383	023_S_1046	MCItoMCI	M	72	m06	5/29/2007	train
174	I29027	023_S_1046	MCItoMCI	M	72	sc	11/06/2006	train
175	I107894	023_S_1046	MCItoMCI	M	73	m18	5/30/2008	train
176	I81020	023_S_1046	MCItoMCI	M	73	m12	11/06/2007	train
177	I33103	023_S_1126	MCItoMCI	M	80	sc	12/05/2006	train
178	I110039	023_S_1126	MCItoMCI	M	82	m18	6/18/2008	train
179	I83576	023_S_1126	MCItoMCI	M	81	m12	11/28/2007	train
180	I57304	023_S_1126	MCItoMCI	M	81	m06	6/19/2007	train
181	I86730	023_S_1190	CNtoMCI	F	78	m12	1/08/2008	train
182	I166476	023_S_1190	CNtoMCI	F	80	m36	2/19/2010	train
183	I133821	023_S_1190	CNtoMCI	F	79	m24	1/15/2009	train
184	I224748	023_S_1190	CNtoMCI	F	81	v06	3/23/2011	train
185	I46218	027_S_0835	MCItoAD	M	73	m06	3/22/2007	train

186	I100312	027_S_0835	MCItoAD	M	74	m18	4/03/2008	train
187	I118251	027_S_0835	MCItoAD	M	75	m24	9/23/2008	train
188	I75254	027_S_0835	MCItoAD	M	74	m12	9/26/2007	train
189	I78587	027_S_1387	MCItoAD	M	86	m06	10/26/2007	train
190	I138337	027_S_1387	MCItoAD	M	88	m24	3/11/2009	train
191	I117856	027_S_1387	MCItoAD	M	87	m18	9/12/2008	train
192	I97368	027_S_1387	MCItoAD	M	87	m12	3/13/2008	train
193	I305151	031_S_4032	CNtoCN	F	71	v11	5/17/2012	train
194	I371757	031_S_4032	CNtoCN	F	72	v21	5/09/2013	train
195	I234922	031_S_4032	CNtoCN	F	70	v02	5/09/2011	train
196	I270395	031_S_4032	CNtoCN	F	71	v05	12/05/2011	train
197	I274097	031_S_4218	CNtoMCI	M	81	v04	12/08/2011	train
198	I292597	031_S_4218	CNtoMCI	M	81	v05	3/23/2012	train
199	I255978	031_S_4218	CNtoMCI	M	81	v02	9/08/2011	train
200	I337984	031_S_4218	CNtoMCI	M	82	v11	10/02/2012	train
201	I362229	031_S_4496	CNtoCN	F	77	v11	3/07/2013	train
202	I282638	031_S_4496	CNtoCN	F	76	v02	2/03/2012	train
203	I325224	031_S_4496	CNtoCN	F	77	v05	8/20/2012	train
204	I414943	031_S_4496	CNtoCN	F	78	v21	2/20/2014	train
205	I95921	032_S_0187	MCItoAD	M	79	m24	3/06/2008	train
206	I26392	032_S_0187	MCItoAD	M	78	m06	10/16/2006	train
207	I70210	032_S_0187	MCItoAD	M	79	m18	8/23/2007	train
208	I43265	032_S_0187	MCItoAD	M	78	m12	3/08/2007	train
209	I214810	032_S_1169	CNtoMCI	F	76	m48	1/26/2011	train
210	I134314	032_S_1169	CNtoMCI	F	74	m24	1/21/2009	train
211	I163225	032_S_1169	CNtoMCI	F	75	m36	1/11/2010	train
212	I282651	032_S_1169	CNtoMCI	F	77	v06	2/02/2012	train
213	I67627	033_S_0725	MCItoAD	M	82	m12	8/10/2007	train
214	I115750	033_S_0725	MCItoAD	M	83	m24	8/06/2008	train
215	I93512	033_S_0725	MCItoAD	M	83	m18	2/26/2008	train
216	I40132	033_S_0725	MCItoAD	M	82	m06	2/09/2007	train
217	I9171	035_S_0033	MCItoMCI	M	83	sc	11/22/2005	train
218	I57092	035_S_0033	MCItoMCI	M	85	m18	6/14/2007	train
219	I33251	035_S_0033	MCItoMCI	M	85	m12	12/14/2006	train
220	I16328	035_S_0033	MCItoMCI	M	84	m06	5/30/2006	train
221	I488420	035_S_0156	CNtoMCI	M	80	v06	3/15/2012	test
222	I223709	035_S_0156	CNtoMCI	M	79	m60	3/03/2011	test
223	I361056	035_S_0156	CNtoMCI	M	81	v11	2/20/2013	test

224	I167167	035_S_0156	CNtoMCI	M	78	m48	2/22/2010	test
225	I11146	035_S_0204	MCItoMCI	F	71	sc	2/14/2006	test
226	I41873	035_S_0204	MCItoMCI	F	72	m12	2/22/2007	test
227	I24834	035_S_0204	MCItoMCI	F	72	m06	9/21/2006	test
228	I71149	035_S_0204	MCItoMCI	F	73	m18	8/30/2007	test
229	I12334	035_S_0292	MCItoMCI	M	77	sc	3/22/2006	test
230	I81263	035_S_0292	MCItoMCI	M	78	m18	11/08/2007	test
231	I54229	035_S_0292	MCItoMCI	M	78	m12	5/10/2007	test
232	I25880	035_S_0292	MCItoMCI	M	77	m06	10/05/2006	test
233	I165551	035_S_0555	CNtoMCI	M	80	m36	1/29/2010	train
234	I145242	035_S_0555	CNtoMCI	M	80	m24	4/29/2009	train
235	I84347	035_S_0555	CNtoMCI	M	78	m12	12/06/2007	train
236	I213220	035_S_0555	CNtoMCI	M	81	m48	12/13/2010	train
237	I62330	035_S_0997	MCItoMCI	F	81	m06	6/28/2007	train
238	I113530	035_S_0997	MCItoMCI	F	82	m18	7/17/2008	train
239	I30992	035_S_0997	MCItoMCI	F	81	sc	11/29/2006	train
240	I88487	035_S_0997	MCItoMCI	F	82	m12	1/24/2008	train
241	I16408	036_S_0576	CNtoCN	M	78	sc	6/01/2006	test
242	I31746	036_S_0576	CNtoCN	M	78	m06	12/05/2006	test
243	I113341	036_S_0576	CNtoCN	M	80	m24	7/16/2008	test
244	I56157	036_S_0576	CNtoCN	M	79	m12	6/06/2007	test
245	I18179	036_S_0656	MCItoMCI	M	83	sc	7/07/2006	train
246	I60184	036_S_0656	MCItoMCI	M	84	m12	7/16/2007	train
247	I87990	036_S_0656	MCItoMCI	M	84	m18	1/22/2008	train
248	I37173	036_S_0656	MCItoMCI	M	83	m06	1/22/2007	train
249	I89838	036_S_0673	MCItoMCI	M	80	m18	2/07/2008	test
250	I39449	036_S_0673	MCItoMCI	M	79	m06	2/12/2007	test
251	I19499	036_S_0673	MCItoMCI	M	78	sc	7/21/2006	test
252	I60539	036_S_0673	MCItoMCI	M	79	m12	7/18/2007	test
253	I42212	036_S_0748	MCItoMCI	M	80	m06	3/02/2007	train
254	I95874	036_S_0748	MCItoMCI	M	81	m18	3/07/2008	train
255	I68311	036_S_0748	MCItoMCI	M	81	m12	8/17/2007	train
256	I20342	036_S_0748	MCItoMCI	M	80	sc	8/10/2006	train
257	I26898	036_S_0869	MCItoAD	F	85	m24	11/17/2008	train
258	I82851	036_S_0869	MCItoAD	F	84	m12	11/20/2007	train
259	I104983	036_S_0869	MCItoAD	F	85	m18	5/08/2008	train
260	I53760	036_S_0869	MCItoAD	F	84	m06	5/08/2007	train
261	I56637	036_S_0945	MCItoMCI	M	73	m06	6/11/2007	train

262	I106788	036_S_0945	MCItoMCI	M	74	m18	5/27/2008	train
263	I81253	036_S_0945	MCItoMCI	M	73	m12	11/09/2007	train
264	I27443	036_S_0945	MCItoMCI	M	72	sc	10/25/2006	train
265	I86621	036_S_1135	MCItoAD	M	77	m12	1/07/2008	train
266	I114072	036_S_1135	MCItoAD	M	77	m18	7/23/2008	train
267	I137683	036_S_1135	MCItoAD	M	78	m24	1/16/2009	train
268	I58812	036_S_1135	MCItoAD	M	76	m06	7/09/2007	train
269	I137760	036_S_1240	MCItoAD	F	69	m24	3/05/2009	train
270	I117285	036_S_1240	MCItoAD	F	69	m18	8/29/2008	train
271	I68281	036_S_1240	MCItoAD	F	68	m06	8/17/2007	train
272	I104606	036_S_1240	MCItoAD	F	68	m12	3/04/2008	train
273	I315729	036_S_4389	CNtoCN	M	82	v05	7/09/2012	train
274	I270466	036_S_4389	CNtoCN	M	81	v02	12/07/2011	train
275	I355909	036_S_4389	CNtoCN	M	82	v11	1/22/2013	train
276	I410160	036_S_4389	CNtoCN	M	83	v21	1/27/2014	train
277	I321504	036_S_4878	CNtoCN	F	73	v02	8/02/2012	train
278	I388167	036_S_4878	CNtoCN	F	74	v11	8/29/2013	train
279	I439207	036_S_4878	CNtoCN	F	75	v21	8/04/2014	train
280	I358106	036_S_4878	CNtoCN	F	73	v05	2/05/2013	train
281	I242120	037_S_4071	CNtoMCI	M	85	v02	6/28/2011	test
282	I412222	037_S_4071	CNtoMCI	M	85	v05	1/23/2012	test
283	I384204	037_S_4071	CNtoMCI	M	87	v21	8/02/2013	test
284	I315460	037_S_4071	CNtoMCI	M	86	v11	7/09/2012	test
285	I279148	037_S_4381	CNtoMCI	F	55	v02	1/18/2012	test
286	I356409	037_S_4381	CNtoMCI	F	56	v11	1/25/2013	test
287	I323138	037_S_4381	CNtoMCI	F	56	v05	8/10/2012	test
288	I417551	037_S_4381	CNtoMCI	F	57	v21	3/21/2014	test
289	I84356	041_S_0282	MCItoMCI	M	74	m18	12/06/2007	train
290	I38640	041_S_0282	MCItoMCI	M	73	m06	2/08/2007	train
291	I13840	041_S_0282	MCItoMCI	M	72	sc	4/19/2006	train
292	I53912	041_S_0282	MCItoMCI	M	73	m12	5/08/2007	train
293	I53290	041_S_0314	MCItoAD	M	73	m12	5/02/2007	train
294	I83882	041_S_0314	MCItoAD	M	74	m18	11/29/2007	train
295	I141930	041_S_0314	MCItoAD	M	75	m36	4/14/2009	train
296	I102583	041_S_0314	MCItoAD	M	74	m24	4/14/2008	train
297	I78024	041_S_0549	MCItoMCI	M	70	m12	10/16/2007	train
298	I48337	041_S_0549	MCItoMCI	M	70	m06	4/05/2007	train
299	I16934	041_S_0549	MCItoMCI	M	69	sc	6/13/2006	train

300	I95527	041_S_0549	MCItoMCI	M	71	m18	3/05/2008	train
301	I89002	041_S_0598	MCItoMCI	M	74	m18	1/30/2008	train
302	I17116	041_S_0598	MCItoMCI	M	72	sc	6/16/2006	train
303	I37796	041_S_0598	MCItoMCI	M	73	m06	1/30/2007	train
304	I72962	041_S_0598	MCItoMCI	M	74	m12	9/12/2007	train
305	I89201	041_S_0679	MCItoMCI	M	65	m18	1/31/2008	train
306	I39044	041_S_0679	MCItoMCI	M	64	m06	2/09/2007	train
307	I19378	041_S_0679	MCItoMCI	M	63	sc	7/20/2006	train
308	I67547	041_S_0679	MCItoMCI	M	64	m12	8/13/2007	train
309	I132134	041_S_0898	CNtoCN	F	85	m24	12/18/2008	train
310	I84964	041_S_0898	CNtoCN	F	84	m12	12/13/2007	train
311	I26562	041_S_0898	CNtoCN	F	83	sc	10/18/2006	train
312	I54288	041_S_0898	CNtoCN	F	84	m06	5/11/2007	train
313	I111060	041_S_1010	MCItoAD	M	76	m18	6/25/2008	test
314	I84151	041_S_1010	MCItoAD	M	75	m12	12/04/2007	test
315	I133432	041_S_1010	MCItoAD	M	77	m24	1/12/2009	test
316	I55847	041_S_1010	MCItoAD	M	75	m06	6/04/2007	test
317	I153496	041_S_1425	MCItoAD	F	78	m24	8/19/2009	train
318	I115719	041_S_1425	MCItoAD	F	77	m12	8/07/2008	train
319	I191012	041_S_1425	MCItoAD	F	79	m36	8/16/2010	train
320	I136918	041_S_1425	MCItoAD	F	77	m18	2/23/2009	train
321	I84916	051_S_1072	MCItoMCI	F	61	m12	12/12/2007	test
322	I113929	051_S_1072	MCItoMCI	F	62	m18	7/10/2008	test
323	I58567	051_S_1072	MCItoMCI	F	61	m06	7/03/2007	test
324	I30446	051_S_1072	MCItoMCI	F	60	sc	11/24/2006	test
325	I33295	051_S_1131	MCItoMCI	M	87	sc	12/15/2006	train
326	I114307	051_S_1131	MCItoMCI	M	88	m18	7/24/2008	train
327	I60289	051_S_1131	MCItoMCI	M	87	m06	7/16/2007	train
328	I88184	051_S_1131	MCItoMCI	M	88	m12	1/23/2008	train
329	I82922	057_S_0464	MCItoMCI	M	85	m18	11/21/2007	train
330	I15726	057_S_0464	MCItoMCI	M	83	sc	5/17/2006	train
331	I57122	057_S_0464	MCItoMCI	M	84	m12	6/13/2007	train
332	I38138	057_S_0464	MCItoMCI	M	84	m06	1/03/2007	train
333	I23159	057_S_0779	CNtoMCI	M	80	sc	8/16/2006	train
334	I72730	057_S_0779	CNtoMCI	M	81	m12	9/12/2007	train
335	I118511	057_S_0779	CNtoMCI	M	82	m24	9/17/2008	train
336	I44810	057_S_0779	CNtoMCI	M	80	m06	3/14/2007	train
337	I101826	057_S_0839	MCItoAD	F	81	m18	4/09/2008	test

338	I121209	057_S_0839	MCItoAD	F	82	m24	10/15/2008	test
339	I49581	057_S_0839	MCItoAD	F	80	m06	4/18/2007	test
340	I76732	057_S_0839	MCItoAD	F	81	m12	10/03/2007	test
341	I26145	057_S_0941	MCItoMCI	F	73	sc	10/11/2006	train
342	I80060	057_S_0941	MCItoMCI	F	74	m12	10/31/2007	train
343	I50813	057_S_0941	MCItoMCI	F	74	m06	4/25/2007	train
344	I103614	057_S_0941	MCItoMCI	F	75	m18	4/23/2008	train
345	I80073	057_S_1007	MCItoAD	M	73	m12	10/31/2007	test
346	I125226	057_S_1007	MCItoAD	M	74	m24	11/05/2008	test
347	I103844	057_S_1007	MCItoAD	M	74	m18	4/23/2008	test
348	I54113	057_S_1007	MCItoAD	M	73	m06	5/09/2007	test
349	I116087	057_S_1265	MCItoAD	F	84	m18	8/13/2008	train
350	I90419	057_S_1265	MCItoAD	F	83	m12	2/13/2008	train
351	I69965	057_S_1265	MCItoAD	F	83	m06	8/22/2007	train
352	I136399	057_S_1265	MCItoAD	F	84	m24	2/18/2009	train
353	I16203	062_S_0578	CNtoCN	F	77	sc	5/30/2006	train
354	I109368	062_S_0578	CNtoCN	F	79	m24	6/11/2008	train
355	I33942	062_S_0578	CNtoCN	F	78	m06	12/20/2006	train
356	I56684	062_S_0578	CNtoCN	F	78	m12	6/11/2007	train
357	I118098	062_S_1182	MCItoMCI	F	78	m18	9/17/2008	train
358	I69669	062_S_1182	MCItoMCI	F	77	m06	8/21/2007	train
359	I92773	062_S_1182	MCItoMCI	F	77	m12	2/25/2008	train
360	I36398	062_S_1182	MCItoMCI	F	76	sc	1/17/2007	train
361	I117968	062_S_1299	MCItoAD	M	73	m18	9/15/2008	train
362	I73427	062_S_1299	MCItoAD	M	72	m06	9/17/2007	train
363	I138475	062_S_1299	MCItoAD	M	74	m24	3/11/2009	train
364	I98100	062_S_1299	MCItoAD	M	73	m12	3/14/2008	train
365	I129904	067_S_0056	CNtoMCI	F	73	m36	12/09/2008	test
366	I279513	067_S_0056	CNtoMCI	F	76	v06	1/20/2012	test
367	I208165	067_S_0056	CNtoMCI	F	75	m60	12/10/2010	test
368	I401691	067_S_0056	CNtoMCI	F	78	v21	12/13/2013	test
369	I208198	067_S_0059	CNtoMCI	F	76	m60	12/10/2010	train
370	I401707	067_S_0059	CNtoMCI	F	79	v21	12/13/2013	train
371	I129892	067_S_0059	CNtoMCI	F	74	m36	12/09/2008	train
372	I279503	067_S_0059	CNtoMCI	F	77	v06	1/20/2012	train
373	I71131	067_S_0077	MCItoMCI	M	81	m18	8/30/2007	train
374	I42957	067_S_0077	MCItoMCI	M	81	m12	3/05/2007	train
375	I10323	067_S_0077	MCItoMCI	M	80	sc	12/21/2005	train

376	I23247	067_S_0077	MCItoMCI	M	80	m06	8/21/2006	train
377	I49698	067_S_0177	CNtoCN	F	76	m12	4/18/2007	train
378	I34073	067_S_0177	CNtoCN	F	76	m06	12/22/2006	train
379	I104937	067_S_0177	CNtoCN	F	77	m24	5/07/2008	train
380	I11967	067_S_0177	CNtoCN	F	75	sc	3/10/2006	train
381	I67643	067_S_0607	MCItoMCI	F	79	m12	8/13/2007	test
382	I17562	067_S_0607	MCItoMCI	F	78	sc	6/27/2006	test
383	I104552	067_S_0607	MCItoMCI	F	80	m18	5/02/2008	test
384	I44712	067_S_0607	MCItoMCI	F	79	m06	3/13/2007	test
385	I286628	072_S_4103	CNtoCN	M	72	v05	2/27/2012	train
386	I386111	072_S_4103	CNtoCN	M	73	v21	8/19/2013	train
387	I245969	072_S_4103	CNtoCN	M	71	v02	7/20/2011	train
388	I325285	072_S_4103	CNtoCN	M	72	v11	8/21/2012	train
389	I372646	073_S_4739	CNtoCN	M	66	v11	5/16/2013	train
390	I433555	073_S_4739	CNtoCN	M	67	v21	6/30/2014	train
391	I304867	073_S_4739	CNtoCN	M	65	v02	5/16/2012	train
392	I346581	073_S_4739	CNtoCN	M	66	v05	11/14/2012	train
393	I435761	073_S_4762	CNtoCN	M	76	v21	7/15/2014	train
394	I581201	073_S_4762	CNtoCN	M	75	v11	9/04/2013	train
395	I362205	073_S_4762	CNtoCN	M	75	v05	3/06/2013	train
396	I314311	073_S_4762	CNtoCN	M	74	v02	5/24/2012	train
397	I277098	082_S_4090	CNtoCN	M	72	v05	1/04/2012	train
398	I384356	082_S_4090	CNtoCN	M	74	v21	8/05/2013	train
399	I241094	082_S_4090	CNtoCN	M	71	v02	6/20/2011	train
400	I315752	082_S_4090	CNtoCN	M	73	v11	7/09/2012	train
401	I334193	082_S_4208	CNtoCN	M	79	v11	9/12/2012	train
402	I289973	082_S_4208	CNtoCN	M	79	v05	3/12/2012	train
403	I253469	082_S_4208	CNtoCN	M	78	v02	8/30/2011	train
404	I389732	082_S_4208	CNtoCN	M	80	v21	9/11/2013	train
405	I257382	082_S_4224	CNtoCN	M	75	v02	9/21/2011	train
406	I339621	082_S_4224	CNtoCN	M	76	v11	10/10/2012	train
407	I1043686	082_S_4224	CNtoCN	M	77	v21	10/23/2013	train
408	I298621	082_S_4224	CNtoCN	M	76	v05	4/18/2012	train
409	I350652	082_S_4339	CNtoCN	M	85	v11	12/10/2012	train
410	I265938	082_S_4339	CNtoCN	M	84	v02	11/09/2011	train
411	I307060	082_S_4339	CNtoCN	M	85	v05	5/30/2012	train
412	I404140	082_S_4339	CNtoCN	M	87	v21	1/07/2014	train
413	I16244	099_S_0051	MCItoMCI	M	67	m06	5/31/2006	train

414	I58400	099_S_0051	MCItoMCI	M	68	m18	7/03/2007	train
415	I9066	099_S_0051	MCItoMCI	M	67	sc	11/15/2005	train
416	I34266	099_S_0051	MCItoMCI	M	68	m12	12/26/2006	train
417	I9071	099_S_0054	MCItoMCI	F	81	sc	11/16/2005	train
418	I60398	099_S_0054	MCItoMCI	F	83	m18	7/17/2007	train
419	I18947	099_S_0054	MCItoMCI	F	82	m06	7/14/2006	train
420	I34627	099_S_0054	MCItoMCI	F	82	m12	12/28/2006	train
421	I11780	099_S_0291	MCItoMCI	M	79	sc	3/09/2006	train
422	I25371	099_S_0291	MCItoMCI	M	80	m06	9/29/2006	train
423	I47662	099_S_0291	MCItoMCI	M	80	m12	4/02/2007	train
424	I76878	099_S_0291	MCItoMCI	M	81	m18	10/05/2007	train
425	I58464	099_S_0551	MCItoMCI	M	65	m12	7/03/2007	train
426	I30570	099_S_0551	MCItoMCI	M	65	m06	11/28/2006	train
427	I83687	099_S_0551	MCItoMCI	M	66	m18	11/29/2007	train
428	I15575	099_S_0551	MCItoMCI	M	64	sc	5/18/2006	train
429	I52173	099_S_1034	MCItoMCI	M	76	m06	4/30/2007	train
430	I83673	099_S_1034	MCItoMCI	M	76	m12	11/29/2007	train
431	I105114	099_S_1034	MCItoMCI	M	77	m18	5/12/2008	train
432	I28429	099_S_1034	MCItoMCI	M	75	sc	11/02/2006	train
433	I420366	100_S_4469	CNtoCN	M	68	v21	4/16/2014	train
434	I366946	100_S_4469	CNtoCN	M	67	v11	4/11/2013	train
435	I289564	100_S_4469	CNtoCN	M	66	v02	3/08/2012	train
436	I341919	100_S_4469	CNtoCN	M	67	v05	10/23/2012	train
437	I836284	100_S_4512	CNtoMCI	F	73	v41	4/04/2017	train
438	I377054	100_S_4512	CNtoMCI	F	69	v11	6/17/2013	train
439	I423383	100_S_4512	CNtoMCI	F	70	v21	4/29/2014	train
440	I344440	100_S_4512	CNtoMCI	F	69	v05	11/06/2012	train
441	I106809	109_S_0950	MCItoMCI	M	75	m12	12/17/2007	train
442	I27670	109_S_0950	MCItoMCI	M	74	sc	10/25/2006	train
443	I113378	109_S_0950	MCItoMCI	M	75	m18	7/15/2008	train
444	I57465	109_S_0950	MCItoMCI	M	74	m06	6/19/2007	train
445	I106825	109_S_0967	CNtoCN	M	78	m12	12/17/2007	train
446	I140954	109_S_0967	CNtoCN	M	79	m24	12/03/2008	train
447	I27640	109_S_0967	CNtoCN	M	77	sc	10/23/2006	train
448	I57502	109_S_0967	CNtoCN	M	78	m06	6/19/2007	train
449	I35526	109_S_1014	CNtoCN	F	85	sc	12/28/2006	train
450	I124674	109_S_1014	CNtoCN	F	86	m06	8/15/2007	train
451	I102982	109_S_1014	CNtoCN	F	86	m12	4/14/2008	train

452	I435190	109_S_1014	CNtoCN	F	87	m24	1/22/2009	train
453	I35256	109_S_1114	MCItoMCI	F	78	sc	12/27/2006	test
454	I63066	109_S_1114	MCItoMCI	F	79	m06	7/23/2007	test
455	I88711	109_S_1114	MCItoMCI	F	80	m12	1/25/2008	test
456	I113368	109_S_1114	MCItoMCI	F	80	m18	7/15/2008	test
457	I35276	109_S_1183	MCItoMCI	M	80	sc	1/03/2007	train
458	I88699	109_S_1183	MCItoMCI	M	81	m12	1/25/2008	train
459	I124744	109_S_1183	MCItoMCI	M	82	m18	7/16/2008	train
460	I124701	109_S_1183	MCItoMCI	M	81	m06	7/20/2007	train
461	I54710	114_S_0378	MCItoMCI	F	70	m12	5/11/2007	train
462	I28134	114_S_0378	MCItoMCI	F	70	m06	10/26/2006	train
463	I12868	114_S_0378	MCItoMCI	F	69	sc	4/04/2006	train
464	I82406	114_S_0378	MCItoMCI	F	71	m18	11/02/2007	train
465	I80580	114_S_0410	MCItoMCI	F	63	m18	11/01/2007	train
466	I49966	114_S_0410	MCItoMCI	F	62	m12	4/23/2007	train
467	I31047	114_S_0410	MCItoMCI	F	62	m06	11/29/2006	train
468	I13595	114_S_0410	MCItoMCI	F	61	sc	4/18/2006	train
469	I57259	114_S_0458	MCItoMCI	F	84	m12	6/14/2007	train
470	I14779	114_S_0458	MCItoMCI	F	83	sc	5/09/2006	train
471	I30624	114_S_0458	MCItoMCI	F	84	m06	11/27/2006	train
472	I85410	114_S_0458	MCItoMCI	F	85	m18	12/04/2007	train
473	I31223	114_S_1103	MCItoMCI	M	83	sc	11/29/2006	train
474	I113665	114_S_1103	MCItoMCI	M	85	m18	7/16/2008	train
475	I58596	114_S_1103	MCItoMCI	M	84	m06	7/03/2007	train
476	I88579	114_S_1103	MCItoMCI	M	84	m12	1/15/2008	train
477	I88411	114_S_1106	MCItoMCI	F	75	m12	12/18/2007	test
478	I30410	114_S_1106	MCItoMCI	F	74	sc	11/21/2006	test
479	I111725	114_S_1106	MCItoMCI	F	76	m18	6/23/2008	test
480	I56460	114_S_1106	MCItoMCI	F	75	m06	6/07/2007	test
481	I88629	114_S_1118	MCItoMCI	M	84	m12	1/15/2008	train
482	I112079	114_S_1118	MCItoMCI	M	84	m18	6/27/2008	train
483	I32597	114_S_1118	MCItoMCI	M	83	sc	12/08/2006	train
484	I59318	114_S_1118	MCItoMCI	M	83	m06	7/11/2007	train
485	I114906	116_S_0649	MCItoAD	M	89	m24	7/30/2008	test
486	I81064	116_S_0649	MCItoAD	M	88	m12	8/08/2007	test
487	I41331	116_S_0649	MCItoAD	M	87	m06	2/21/2007	test
488	I90817	116_S_0649	MCItoAD	M	88	m18	2/07/2008	test
489	I257312	116_S_4092	CNtoMCI	F	82	v04	9/21/2011	train

490	I241692	116_S_4092	CNtoMCI	F	82	v02	6/24/2011	train
491	I278836	116_S_4092	CNtoMCI	F	82	v05	1/13/2012	train
492	I322545	116_S_4092	CNtoMCI	F	83	v11	7/24/2012	train
493	I321271	116_S_4855	CNtoMCI	M	84	v02	7/20/2012	train
494	I384456	116_S_4855	CNtoMCI	M	85	v11	8/05/2013	train
495	I500525	116_S_4855	CNtoMCI	M	86	v21	8/26/2014	train
496	I360684	116_S_4855	CNtoMCI	M	84	v05	2/19/2013	train
497	I310245	130_S_4343	CNtoCN	M	80	v05	6/11/2012	train
498	I350050	130_S_4343	CNtoCN	M	81	v11	12/07/2012	train
499	I266217	130_S_4343	CNtoCN	M	80	v02	11/09/2011	train
500	I398576	130_S_4343	CNtoCN	M	82	v21	11/14/2013	train
501	I302617	130_S_4352	CNtoCN	M	84	v05	5/08/2012	test
502	I267711	130_S_4352	CNtoCN	M	84	v02	11/15/2011	test
503	I346745	130_S_4352	CNtoCN	M	85	v11	11/14/2012	test
504	I399997	130_S_4352	CNtoCN	M	86	v21	12/04/2013	test
505	I322742	135_S_4446	CNtoCN	F	69	v05	8/09/2012	train
506	I408196	135_S_4446	CNtoCN	F	71	v21	1/27/2014	train
507	I355689	135_S_4446	CNtoCN	F	69	v11	1/22/2013	train
508	I278378	135_S_4446	CNtoCN	F	68	v02	1/17/2012	train
509	I364577	135_S_4566	CNtoMCI	F	85	v11	3/27/2013	train
510	I335456	135_S_4566	CNtoMCI	F	84	v05	9/19/2012	train
511	I419206	135_S_4566	CNtoMCI	F	86	v21	4/07/2014	train
512	I288820	135_S_4566	CNtoMCI	F	84	v02	3/07/2012	train
513	I23609	141_S_0717	CNtoCN	M	76	sc	8/27/2006	train
514	I49388	141_S_0717	CNtoCN	M	77	m06	4/07/2007	train
515	I74874	141_S_0717	CNtoCN	M	77	m12	9/21/2007	train
516	I119296	141_S_0717	CNtoCN	M	78	m24	9/19/2008	train
517	I82715	141_S_0915	MCItoMCI	F	82	m12	11/17/2007	train
518	I105572	141_S_0915	MCItoMCI	F	82	m18	5/13/2008	train
519	I26835	141_S_0915	MCItoMCI	F	80	sc	7/06/2006	train
520	I56940	141_S_0915	MCItoMCI	F	81	m06	6/12/2007	train
521	I56929	141_S_0982	MCItoMCI	F	81	m06	6/14/2007	train
522	I81989	141_S_0982	MCItoMCI	F	81	m12	11/13/2007	train
523	I30006	141_S_0982	MCItoMCI	F	80	sc	11/15/2006	train
524	I105540	141_S_0982	MCItoMCI	F	82	m18	5/14/2008	train
525	I105123	141_S_1004	MCItoMCI	F	76	m18	5/09/2008	train
526	I57817	141_S_1004	MCItoMCI	F	75	m06	5/18/2007	train
527	I82676	141_S_1004	MCItoMCI	F	75	m12	11/16/2007	train

528	I31418	141_S_1004	MCItoMCI	F	74	sc	12/02/2006	train
529	I323679	153_S_4151	CNtoCN	M	73	v11	8/14/2012	train
530	I287495	153_S_4151	CNtoCN	M	73	v05	3/01/2012	train
531	I389229	153_S_4151	CNtoCN	M	74	v21	9/10/2013	train
532	I251754	153_S_4151	CNtoCN	M	72	v02	8/18/2011	train
533	I401199	153_S_4372	CNtoCN	F	72	v21	12/11/2013	train
534	I269347	153_S_4372	CNtoCN	F	70	v02	11/30/2011	train
535	I350812	153_S_4372	CNtoCN	F	71	v11	12/11/2012	train
536	I306339	153_S_4372	CNtoCN	F	71	v05	5/24/2012	train
537	I70033	941_S_1194	CNtoCN	M	85	m06	8/22/2007	train
538	I37062	941_S_1194	CNtoCN	M	85	sc	1/20/2007	train
539	I100034	941_S_1194	CNtoCN	M	86	m12	3/25/2008	train
540	I136121	941_S_1194	CNtoCN	M	87	m24	2/14/2009	train
541	I37076	941_S_1197	CNtoCN	F	82	sc	1/20/2007	test
542	I71166	941_S_1197	CNtoCN	F	83	m06	8/30/2007	test
543	I137077	941_S_1197	CNtoCN	F	85	m24	2/24/2009	test
544	I106931	941_S_1197	CNtoCN	F	84	m12	5/21/2008	test
545	I95515	941_S_1202	CNtoMCI	M	79	m12	2/28/2008	train
546	I136342	941_S_1202	CNtoMCI	M	80	m24	2/17/2009	train
547	I37701	941_S_1202	CNtoMCI	M	78	sc	1/30/2007	train
548	I70419	941_S_1202	CNtoMCI	M	78	m06	8/24/2007	train
549	I323049	941_S_4100	CNtoMCI	F	80	v11	8/09/2012	train
550	I307160	941_S_4100	CNtoMCI	F	79	v05	5/30/2012	train
551	I245771	941_S_4100	CNtoMCI	F	79	v02	7/18/2011	train
552	I389419	941_S_4100	CNtoMCI	F	81	v21	8/30/2013	train
553	I352741	941_S_4365	CNtoCN	M	81	v11	12/20/2012	test
554	I313274	941_S_4365	CNtoCN	M	81	v05	6/28/2012	test
555	I418940	941_S_4365	CNtoCN	M	83	v21	4/03/2014	test
556	I269096	941_S_4365	CNtoCN	M	80	v02	11/22/2011	test