

# IDA ADNI Image Analysis

# User Testing Report



USC Stevens Neuroimaging and Informatics Institute

# Methods

User testing was conducted with a total of four researchers at the Laboratory of Neuro Imaging at USC to improve the accessibility of ADNI MR image analysis data on the Image and Data Archive (IDA). Users were tasked with finding ASL, DTI or fMRI image analysis data for ADNI on: (1) the current ADNI IDA page, (2) mockup Option A which categorizes MR image analysis results by modality, and (3) mockup option B which categorizes all MR image analysis modalities into one category. All mockups are included in the User Interface Mockups section of this document.

#### Results

Most users initially looked through the current IDA ADNI page and scrolled to look for analysis data. Then, they used Command + F on the keyboard to search the page for keywords like "ASL", "DTI" or "fMRI." Only one of four users saw the search box on the top of the page and used it to perform a search for keywords.

After being asked how they would perform the same task on mockup Option A and Option B, all four users preferred Option A. Feedback suggested that it was helpful to see the analysis data broken up by modality, and it made it easier to find the image analysis data for the modality they were looking for. The categorization in Option B was not as clear as A, and users said it would be more helpful if the analysis data are further categorized into modalities.

#### Recommendations

Based on user feedback, the following updates are recommended and are reflected in the Final Mockup:

- Restructuring the categorization of MR image analysis data by modality.
- Increasing the size of the search area and search button to make it easier for users to search for available data.



# User Interface Mockups

#### **Final Mockup**

						Southern California
ADNI						Hovsep Agop@ioni.usc.edu My Account Sign Out
	HOME	ADNI @LONI	DOWNLOAD	SEARCH	PROJECTS	SUPPORT

#### **Download Study Data**

Assessments			
Biospecimen	Search all data		↓ Download
Curated Data Cuts			
Enrollment	MR Imaging: ALL		
Genetic			
MR Imaging	Select ALL		
MR Image Acquisition	MR Image Acquisition		
MR Image Quality	All MR Image Acquisition		
DTI Analysis	1.5T MRI Scan Information [ADNI1.GO.2.3]		
	3T MRI Scan Information [ADNI1.GO,2.3]		
fMRI Analysis	ADNI 3 Diffusion Gradient Table information for GE	Version: 2018-03-20	
SMRI Analysis	ADNI 3 Diffusion Gradient Table information for Philips	Version: 2018-03-20	
ALL	ADNI 3 Diffusion Gradient Table information for Siemens	Version: 2018-03-20	
PET Imaging	MP-RAGE Metadata Listing [ADNI1.GO.2]		
Medical History	MRI B1 Calibration [ADNI1]		
Neuropathology	MRI Clinical Read [ADNI1]		
Study Info	MRI Phantom (ADNI1,GO,2)		
Subject Characteristics	MRI Protocol [ADNI1.GO.2]		
Test Data	MRI Scan Metadata Listing [ADNI1.GO.2.3] MRI Serial [ADNI1.GO.2]		
_Archive	MRI Subject Inclusion [ADNI1.GO.2]		
_Archive ALL			
ALL	MR Image Quality		
	All MR Image Quality		
	Listing of Changed LONI Study IDs [ADNI1.GO.2]	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI 3 MRI QC		
	Mayo (Jack Lab) - ADNI 3 MRI QC Dictionary     Mayo (Jack Lab) - ADNI GO/2 MRI QC Dictionary [ADNIGO.2]	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI GO/2 MRI QC Dictionary (ADNIGO.2)	Version: 2018-03-20 Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI GO/2 MRI QC (ADNIGO,2]	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI MRI MCH Dictionary [ADNI1,GO,2.3]	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI MRI MCH Methods (PDF)	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI MRI MCH [ADNI1.GO.2.3]	Version: 2018-03-20	
	MRI MPRAGE Process [ADNI1.GO.2]	Version: 2018-03-20	
	MRI MPRAGE Ranking [ADNI1.GO,2]		
	MRI Quality [ADNI1.GO.2]		
	UCSF - ASL Perfusion Raw QC Dictionary [ADNIGO,2]		
	UCSF - ASL Perfusion Raw QC Guide (PDF)	Version: 2018-03-20	
	UCSF - ASL Perfusion Raw QC [ADNIGO,2]		
	DTI Analysis		
	All DTI Analysis		
	UCLA - DTI ROI Summary Measures Dictionary [ADNI1,GO,2]		
	UCLA - DTI ROI Summary Measures Methods (PDF)	Version: 2018-03-20	
	UCLA - DTI ROI Summary Measures [ADNI1,GO,2]	Version: 2018-03-20	
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	fMRI Analysis		
	All fMRI Analysis           Mayo (Jack Lab) - Task-Free fMRI Summary Metric of DMN ROIs Methods (PDF)		
	Mayo (Jack Lab) - Task-Free fMRI Summary Metric of DMN ROIS Methods (PDF) Mayo Network Failure Quotient for rs-fMRI Dictionary [ADNIGO.2,3]	Version: 2018-03-20	
	Mayo Network Failure Quotient for rs-fMRI [ADNIGO.2.3]	Version: 2018-03-20 Version: 2018-03-20	
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	SMRI Analysis		
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LONI Laboratory of Neuro Imaging

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USC Mark and Mary Stevens Neuroimaging and Informatics Institute



## Current IDA Mockup

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Download St	udy Data						
Assessments	Find						Downton
Biospecimen Curated Data Cuts							
Enrollment	<ul> <li>Select ALL tabular data (</li> <li>Select ALL documents and</li> </ul>	csv format) nd zip files [431.0 GB]					
Genetic Imaging	Assessments						
Medical History		toms Checklist [ADNI1.GO.2] / - Baseline Changes [ADNI1.C	GO.2.3]				
Neuropathology Study Info	Diagnostic Summar     ALL Neuropsychologica	[ADNI1.GO.2.3]					
Subject Characteristics Test Data	ADAS Sub-Scores a	nd Total Scores [ADNI1] Assessment Scale (ADAS) [At					
_Archive	Clinical Dementia R	Assessment Scale (ADAS) [Al ting Scale (CDR) [ADNI1.GO.]	DNIGO.2.3]				
ALL	Cognitive Change In Cogstate Battery Re	sults [ADNI2.3]		121.17			
	Cogstate Brief Batte Everyday Cognition	Participant Self Report [ADNI Study Partner Report [ADNIG	GO.2.3]	Version	2016-05-27		
	Financial Capacity In	ustrument Short Form (FCI-SF) Questionnaire (FAQ) [ADNI1.G	[ADNI3]				
	Geriatric Depression	Scale (GDS) [ADNI1.GO.2.3] AS-Cog. ANART, MMSE, etc) [	ADNI1]				
	Mini-Mental State Ex	onary (ADAS-Cog, ANART, MI amination (MMSE) [ADNI1.GC	0.2.3]				
	Montreal Cognitive A	schemia Scale [ADNI1.GO.2.3] ssessment (MoCA) [ADNIGO.					
	Neuropsychiatric Inv	entory (NPI) [ADNI2.3] entory Questionnaire (NPI-Q) [ Battery [ADNI1.GO.2.3]	ADNI1.GO,2.3]				
	UW - Neuropsych S	immary Scores Dictionary [AD immary Scores Methods 12 Ja	NI1.GO.2] n 2016 (PDF)		2017-02-22		
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	BHR Data Dictionar		E IADNI31				
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	Brain Health Registr	STUDY PARTNER ADL [AD]	<u>NI3]</u>	Version	2018-04-05		
	Brain Health Registr	STUDY PARTNER CAREGO STUDY PARTNER EVERYD	AY COGNITION [ADNI3]				
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		int in the LDMS Database [AD]			2016-05-10		
	AD Metabolomics C	nsortium Barcelona Purines Insortium Barcelona Purines D	intionany	Version	2015-12-03		
	AD Metabolomics C	onsortium Barcelona Purines D onsortium Barcelona Purines N onsortium Bile Acids - Post Pro	lethods	Version	: 2015-11-13 : 2018-06-28		
	AD Metabolomics C	onsortium Bile Acids - Post Pro onsortium Bile Acids Dictionary	cessed Data [ADNI1,GO,2]	Version	2018-06-28		
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	C ADMC About the Me	nsortium Lipidomics Methods tabolomics Data	(PDF)		2016-08-16 2015-01-15		
	ADMC Duke ADNI2/	Baseline Drug Classes GO Drug Classes as P180 Kit Flow injection anal	vsis Dictionary (ADNI1)	Version	2016-09-29 2017-05-12 2015-08-13		
	ADMC Duke Biocrat	as p180 Kit Flow injection analy as P180 Kit Flow injection analy	sis Dictionary [ADNIGO.2]	Version	2017-04-12		
	ADMC Duke Biocrat	es p180 Kit Flow injection anal- es P180 Kit Ultra Performance	vsis [ADNIGO.2] Liquid Chromatography Dictio	Version onary Version	2017-04-12		
	(PDF)	es P180 Kit Ultra Performance		version	2015-08-14		
	ADMC Duke Clinical	es P180 Kit Ultra Performance Variables ow injection analysis - Post Pro		Version	2016-05-16 2016-09-29		
	ADMC Duke p180 F ADMC Duke p180 N	ow injection analysis Raw Spe ass Spec Worklist Files	ctra	Version Version	2017-03-07 2017-03-07		
	C ADMC Duke P180 L	upplementary Files (ADNIGO.2 Itra Performance Liquid Chrom	atography - Post Processed I	Data Version	2017-04-10 2016-09-29		
	ADMC Duke P180 L	Itra Performance Liquid Chrom Itra Performance Liquid Chrom	atography Raw Spectra	Version	2017-04-12		
	ADMC Duke p180 V	Itra Performance Liquid Chrom forklist Raw File Mapping Data dracted Ion Chromationams (A)	Dictionary	Version	: 2017-04-12 : 2017-03-07 : 2017-08-09		



## Option A Mockup



#### **Download Study Data**

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ET Imaging	MR Image Acquisition		
R Imaging	All MR Image Acquisition		
IR Image Acquisition	1.5T MRI Scan Information [ADNI1.GO.2.3]		
MR Image Quality	3T MRI Scan Information [ADNI1,GO,2,3]		
OTI Analysis	ADNI 3 Diffusion Gradient Table information for GE     ADNI 3 Diffusion Gradient Table information for Division	Version: 2018-03-20	
MRI Analysis	ADNI 3 Diffusion Gradient Table information for Philips     ADNI 3 Diffusion Gradient Table information for Siemens	Version: 2018-03-20 Version: 2018-03-20	
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<u>ALL</u>	MRI B1 Calibration [ADNI1]		
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	MR Image Quality		
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	Listing of Changed LONI Study IDs [ADNI1,GO.2]	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI 3 MRI QC Dictionary		
	Mayo (Jack Lab) - ADNI GO/2 MRI QC Dictionary [ADNIGO.2]	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI GO/2 MRI QC Methods (PDF)	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI GO/2 MRI QC [ADNIGO.2]	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI MRI MCH Dictionary [ADNI1.GO,2,3]	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI MRI MCH Methods (PDF)	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI MRI MCH (ADNI1,GO,2,3)	Version: 2018-03-20 Version: 2018-03-20	
	MRI MPRAGE Process (ADNI1.GO.2) MRI MPRAGE Ranking (ADNI1.GO.2)	Version: 2018-03-20	
	MRI Quality [ADNI1.GO,2]		
	UCSF - ASL Perfusion Raw QC Dictionary [ADNIGO.2]		
	UCSF - ASL Perfusion Raw QC Guide (PDF)	Version: 2018-03-20	
	UCSF - ASL Perfusion Raw QC [ADNIGO,2]		
	DTI Analysis		
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	UCLA - DTI ROI Summary Measures Dictionary [ADNI1.GO.2]		
	UCLA - DTI ROI Summary Measures Methods (PDF)	Version: 2018-03-20	
	UCLA - DTI ROI Summary Measures [ADNI1,GO,2]	Version: 2018-03-20	
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	fMRI Analysis		
	All fMRI Analysis		
	Mayo (Jack Lab) - Task-Free fMRI Summary Metric of DMN ROIs Methods (PDF)		
	Mayo Network Failure Quotient for rs-fMRI Dictionary [ADNIGO,2,3]	Version: 2018-03-20	
	Mayo Network Failure Quotient for rs-fMRI [ADNIGO,2,3]	Version: 2018-03-20	
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	SMRI Analysis		
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	Lorem ipsum dolor sit amet, consectetur adipiscing elit [ADNI1.GO.2.3]	Version: 2018-03-20	



# Option B Mockup

					Southern California		
ADNI						Hovsep.Agop@loni.usc.edu My Account Sign Out	
	HOME	ADNI @LONI	DOWNLOAD	SEARCH	PROJECTS	SUPPORT	

#### Download Study Data

essments	Find		Downlo
specimen			
ated Data Cuts	MD Imperium ALL		
ollment	MR Imaging: ALL		
ietic	Select ALL		
r Imaging	MR Image Acquisition		
Imaging	All MR Image Acquisition		
R Image Acquisition	1.5T MRI Scan Information [ADNI1.GO,2,3]		
R Image Quality	3T MRI Scan Information [ADNI1.GO.2.3]		
I Analysis	ADNI 3 Diffusion Gradient Table information for GE	Version: 2018-03-20	
RI Analysis	ADNI 3 Diffusion Gradient Table information for Philips	Version: 2018-03-20	
IRI Analysis	ADNI 3 Diffusion Gradient Table information for Siemens	Version: 2018-03-20	
L	MP-RAGE Metadata Listing [ADNI1.GO.2]		
	MRI B1 Calibration [ADNI1] MRI Clinical Read [ADNI1]		
lical History	MRI Phantom [ADNI1.GO.2]		
iropathology	MRI Protocol [ADNI1.GO.2]		
dy Info	MRI Scan Metadata Listing [ADNI1.GO,2,3]		
ject Characteristics	MRI Serial (ADNI1.GO,2)		
Data	MRI Subject Inclusion [ADNI1,GO,2]		
chive	MR Image Quality		
	All MR Image Quality		
	Listing of Changed LONI Study IDs [ADNI1,GO,2]	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI 3 MRI QC		
	Mayo (Jack Lab) - ADNI 3 MRI QC Dictionary		
	Mayo (Jack Lab) - ADNI GO/2 MRI QC Dictionary [ADNIGO.2]	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI GO/2 MRI QC Methods (PDF)	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI GO/2 MRI QC [ADNIGO.2]	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI MRI MCH Dictionary [ADNI1.GO.2.3]	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI MRI MCH Methods (PDF)	Version: 2018-03-20	
	Mayo (Jack Lab) - ADNI MRI MCH (ADNI1.GO.2.3)	Version: 2018-03-20 Version: 2018-03-20	
	MRI MPRAGE Process (ADNI1.GO.2) MRI MPRAGE Ranking (ADNI1.GO.2)	Version: 2018-03-20	
	MRI Quality [ADN11.GO.2]		
	UCSF - ASL Perfusion Raw QC Dictionary [ADNIGO,2]		
	UCSF - ASL Perfusion Raw QC Guide (PDF)	Version: 2018-03-20	
	UCSF - ASL Perfusion Raw QC [ADNIGO.2]		
	DTI Analysis		
	All DTI Analysis		
	UCLA - DTI ROI Summary Measures Dictionary [ADNI1.GO.2] UCLA - DTI ROI Summary Measures Methods (PDF)	Version: 2018-03-20	
	UCLA - DTI ROI Summary Measures [ADNI1,GO,2]	Version: 2018-03-20	
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	fMRI Analysis		
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	<ul> <li>Mayo (Jack Lab) - Task-Free fMRI Summary Metric of DMN ROIs Methods (PDF)</li> <li>Mayo Network Failure Quotient for rs-fMRI Dictionary [ADNIGO,2,3]</li> </ul>	Version: 2018-03-20	
	Mayo Network Failure Quotient for rs-fMRI [ADNIGO.2.3]	Version: 2018-03-20 Version: 2018-03-20	
	Lorem ipsum dolor sit amet, consectetur adipiscing elit [ADNI1.GO.2.3]	Version: 2018-03-20	
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	SMRI Analysis		
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