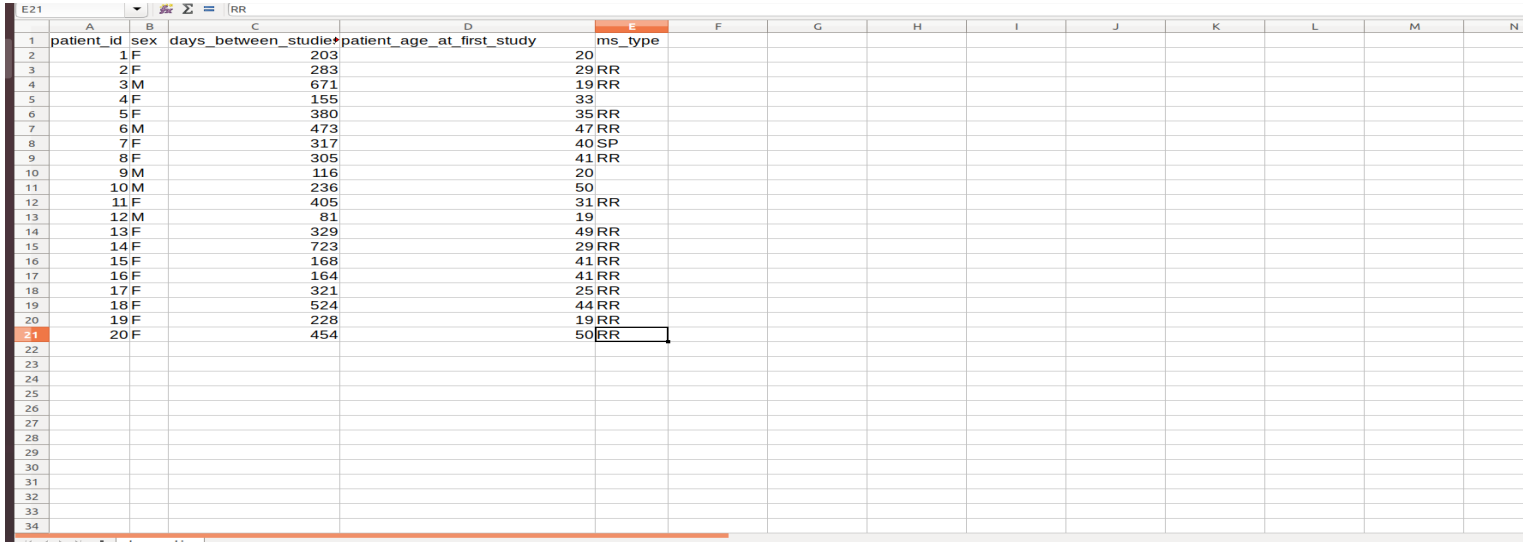
Datasets

- 1 dataset of 20 patients (already processed). No EDSS but classification in terms of MS state
- 1 dataset of 30 patients (already processed) with EDSS scores

Dataset



E21 | RR

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	patient_id	sex	days_between_studies	patient_age_at_first_study	ms_type									
2	1	F	203	20										
3	2	F	283	29	RR									
4	3	M	671	19	RR									
5	4	F	155	33										
6	5	F	380	35	RR									
7	6	M	473	47	RR									
8	7	F	317	40	SP									
9	8	F	305	41	RR									
10	9	M	116	20										
11	10	M	236	50										
12	11	F	405	31	RR									
13	12	M	81	19										
14	13	F	329	49	RR									
15	14	F	723	29	RR									
16	15	F	168	41	RR									
17	16	F	164	41	RR									
18	17	F	321	25	RR									
19	18	F	524	44	RR									
20	19	F	228	19	RR									
21	20	F	454	50	RR									
22														
23														
24														
25														
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28														
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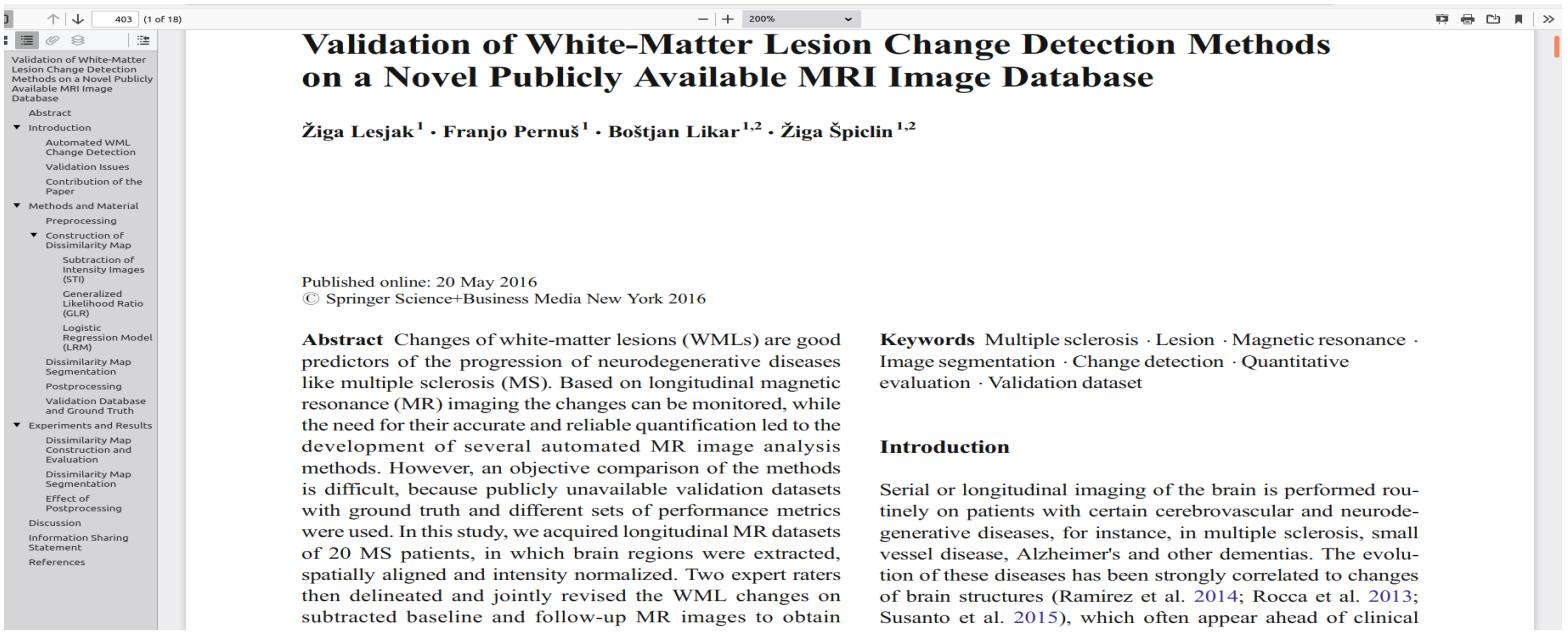
31														
32														
33														
34														

Dataset



Validation of White-Matter Lesion Change Detection Methods on a Novel Publicly Available MRI Image Database

Žiga Lesjak[1] · Franjo Pernuš[1] · Boštjan Likar[1,2] · Žiga Špiclin[1,2]

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Abstract Changes of white-matter lesions (WMLs) are good predictors of the progression of neurodegenerative diseases like multiple sclerosis (MS). Based on longitudinal magnetic resonance (MR) imaging the changes can be monitored, while the need for their accurate and reliable quantification led to the development of several automated MR image analysis methods. However, an objective comparison of the methods is difficult, because publicly unavailable validation datasets with ground truth and different sets of performance metrics were used. In this study, we acquired longitudinal MR datasets of 20 MS patients, in which brain regions were extracted, spatially aligned and intensity normalized. Two expert raters then delineated and jointly revised the WML changes on subtracted baseline and follow-up MR images to obtain

Keywords Multiple sclerosis · Lesion · Magnetic resonance · Image segmentation · Change detection · Quantitative evaluation · Validation dataset

Introduction

Serial or longitudinal imaging of the brain is performed routinely on patients with certain cerebrovascular and neurodegenerative diseases, for instance, in multiple sclerosis, small vessel disease, Alzheimer's and other dementias. The evolution of these diseases has been strongly correlated to changes of brain structures (Ramirez et al. 2014; Rocca et al. 2013; Susanto et al. 2015), which often appear ahead of clinical

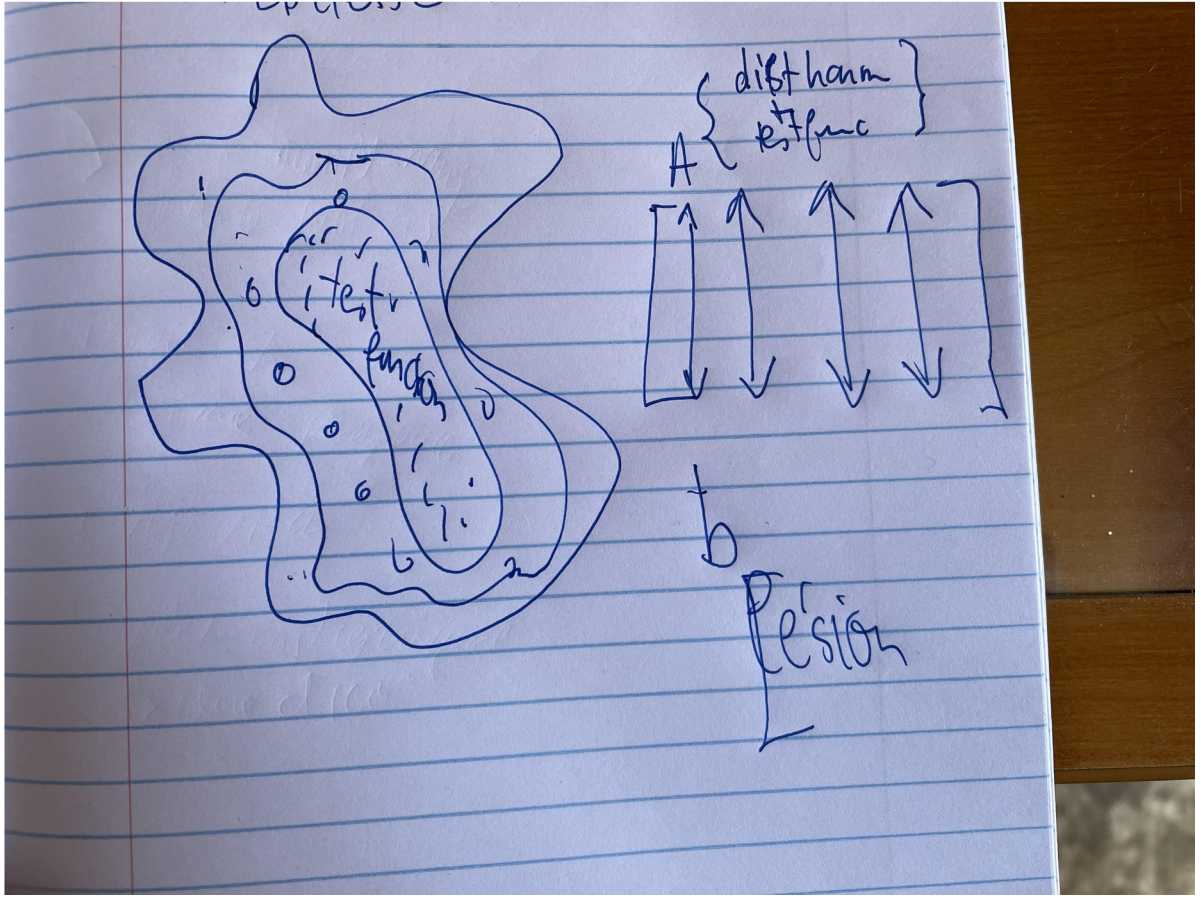
Dataset

README.md

Demographics

id	age	sex	ms_type	edss	criteria
patient01	31	F	RR	1.5	McDonald 2010
patient02	33	M	CIS	0.0	McDonald 2010
patient03	37	F	NA	NA	NA
patient04	25	M	SP	6.5	McDonald 2005
patient05	33	F	RR	3.5	McDonald 2005
patient06	37	F	SP	4.0	McDonald 2005
patient07	53	F	RR	0.5	McDonald 2010
patient08	41	M	RR	5.0	McDonald 2005
patient09	40	F	RR	2.0	McDonald 2010
patient10	64	F	RR	2.0	McDonald 2005
patient11	29	M	RR	2.0	McDonald 2010
patient12	39	F	RR	NA	McDonald 2005
patient13	26	M	RR	2.0	McDonald 2010
patient14	42	M	RR	4.0	McDonald 2005
patient15	57	F	PR	6.5	McDonald 2005
patient16	42	F	RR	4.0	McDonald 2005
patient17	27	F	RR	0.0	McDonald 2010
patient18	60	F	RR	2.0	McDonald 2005
patient19	47	F	RR	1.0	McDonald 2005
patient20	37	F	RR	NA	McDonald 2010
patient21	33	F	RR	4.5	McDonald 2005
patient22	30	F	RR	2.0	McDonald 2005

Null space SVD



- Is there a litterature on the method?
- Advantage: Gaussian based AMFM methods rely on infinite number of samples since the signal dies at tbe boundaries