MAIA

Medical Image Segmentation and Applications (MISA)

IBSR18 PROJECT

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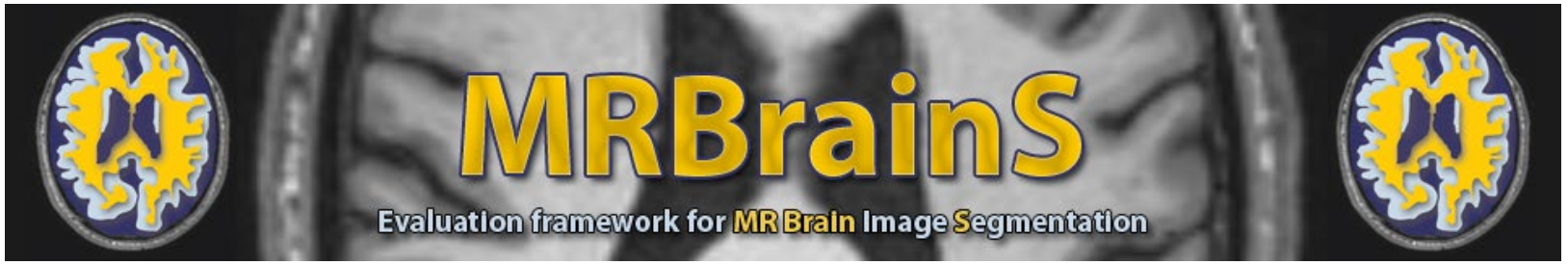
Lab contents

- Image preprocessing (2h) dates: week 27/09
- Clustering segmentation (4h) dates: week 4/10 & 18/10
- Atlas based segmentation (4h). Together with MIRA!
  - Atlas: week 25/10 (MISA + MIRA)
  - EM + Atlas: week 8/11 (MISA + MIRA)
- MICCAI Project. Brain tissue segmentation (8h) From week 22/11 to end of the course. Deadline 13/01/22 (submission).



- Labs done in pairs
- Don’t copy! Plagiarism will be prosecuted, cite your sources of information

Agenda

- Lectures
- Lab sessions
- Seminars
- Final Project

setembre 2021

	dl.	dt.	dc.	dj.	dv.	ds.	dg.
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	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
A	20	21	22	23	24	25	26
B	27	28	29	30			

octubre 2021

	dl.	dt.	dc.	dj.	dv.	ds.	dg.
B					1	2	3
A	4	5	6	7	8	9	10
B	11	12	13	14	15	16	17
A	18	19	20	21	22	23	24
B	25	26	27	28	29	30	31

novembre 2021

	dl.	dt.	dc.	dj.	dv.	ds.	dg.
A	1	2	3	4	5	6	7
B	8	9	10	11	12	13	14
A	15	16	17	18	19	20	21
B	22	23	24	25	26	27	28
A	29	30					

desembre 2021

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A			1	2	3	4	5
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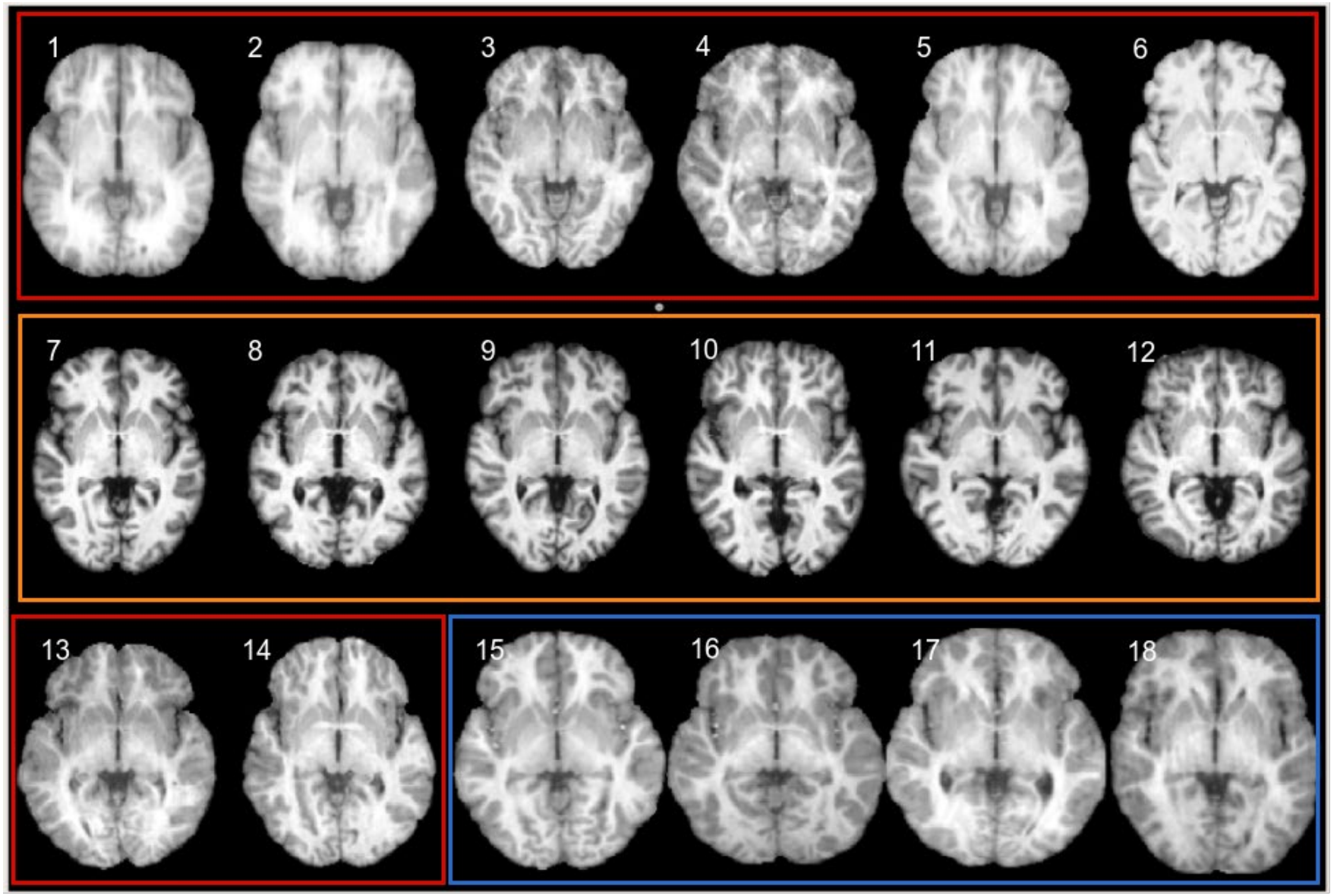
B	13	14	15	16	17	18	19
	20^{dlA}	21^{dtB}	22	23	24	25	26
	27	28	29	30	31		

Deadline Final Project: 13/01/2021

Challenge: IBSR18 Dataset



Project objective

Brain tissue segmentation

- Three tissue classes
  - WM, GM, CSF masks

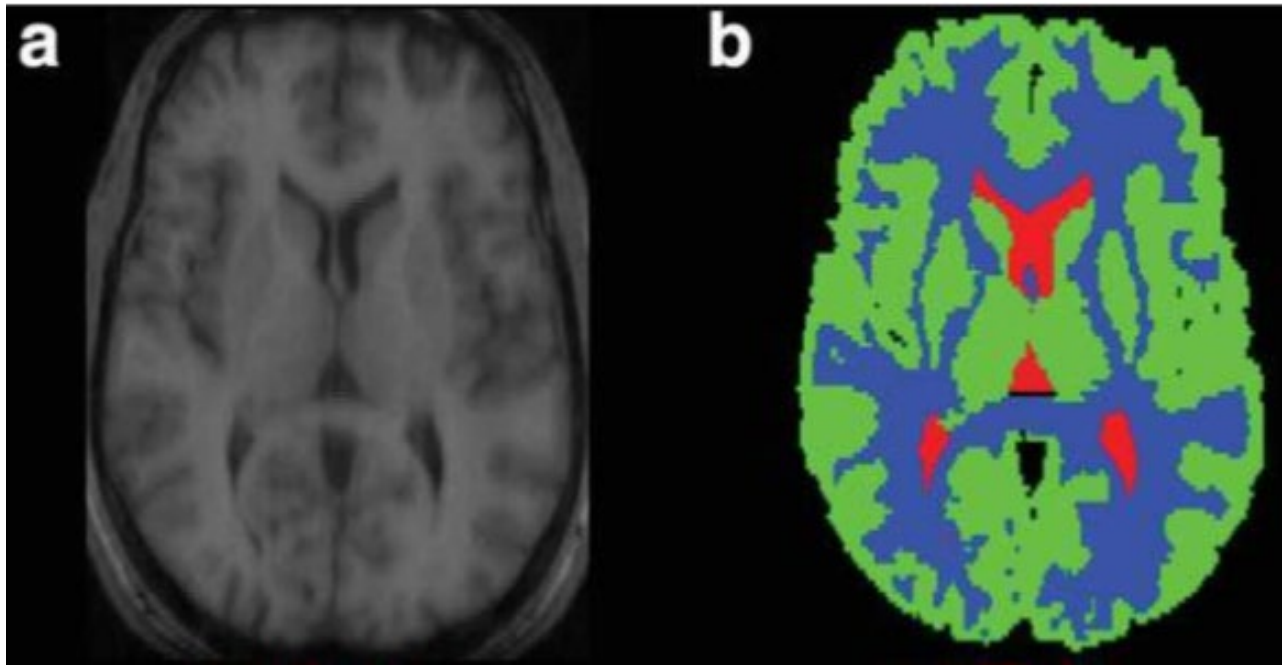


Image sets

- 10 images for training (with GT)
  - Can be used for any purpose (ex. train a supervised system, build an atlas, or implement a multi-atlas approach)
- 5 images for validation (with GT)
  - You will use it to provide quantitative (DSC, HD and AVD) and qualitative evaluation
- 3 images for testing (NO GT)
  - Will be used to perform a competition among groups. The ranking will take into account the similarity of the submitted tissue masks wrt the GT (only one submission per group)

Expected task

- Study the IBSR dataset and propose a segmentation solution
  - Choose a good strategy
  - Choose the appropriate features / classifiers
  - Which methods perform best given specified training data?
- Test the proposed solutions on the supplied data
  - Provide results for all the validation images (you could also report training results if needed)
  - Explain all the strategies analysed and solutions and improvements

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Good luck!!!
Hope you will enjoy this project!

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