

LOCUSuite: a complete software suite for brain scan segmentation

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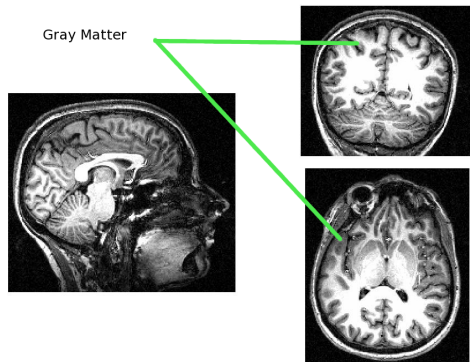
TS-LOCUS Tissue & Structure Segmentation of Healthy MRI Sequences.

P-LOCUS Pathological MRI Segmentation.

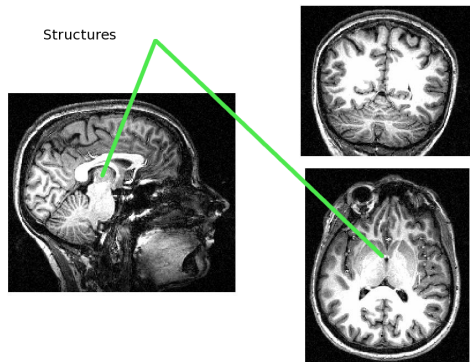
- ▶ Joint Tissue and Structure Segmentation



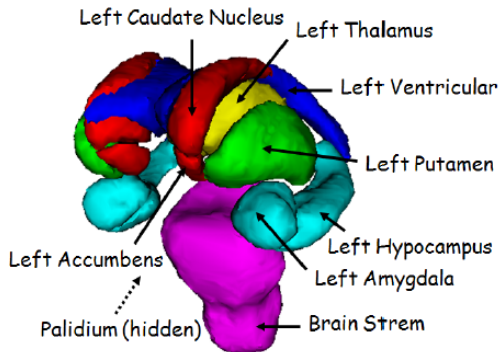
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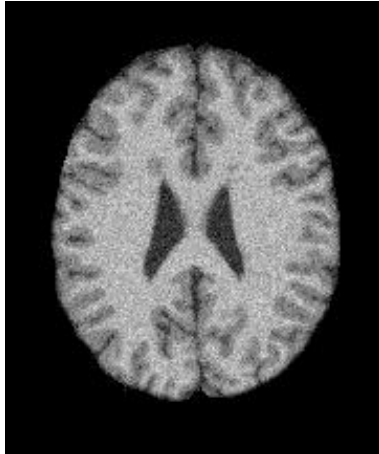
- ▶ Joint Tissue and Structure Segmentation
- ▶ Robust to Intensity Inhomogeneity & Noise



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TS-LOCUS Methodology

P-LOCUS Features

Automatic Segmentation of Pathological Datasets

(Stroke & MS)

- ▶ Multiple MRI Sequences

P-LOCUS Features

Automatic Segmentation of Pathological Datasets

(Stroke & MS)

- ▶ Multiple MRI Sequences
- ▶ *A Priori* Probabilistic Atlases

Automatic Segmentation of Pathological Datasets

(Stroke & MS)

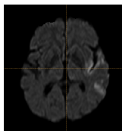
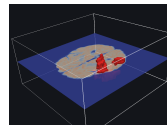
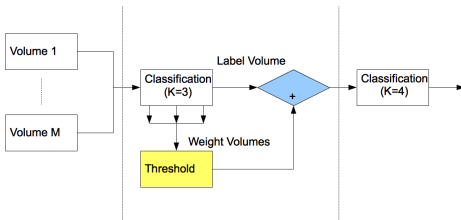
- ▶ Multiple MRI Sequences
- ▶ *A Priori* Probabilistic Atlases
- ▶ Joint Registration & Segmentation

Automatic Segmentation of Pathological Datasets

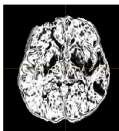
(Stroke & MS)

- ▶ Multiple MRI Sequences
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- ▶ Joint Registration & Segmentation

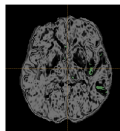
P-LOCUS Features (Bayesian Weighted Model)



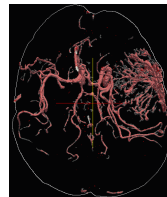
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weights



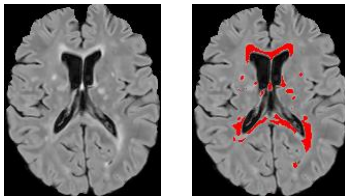
threshold



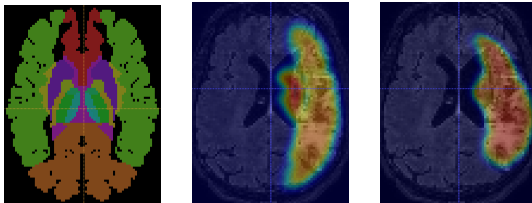
P-LOCUS Features

Multiple Sclerosis Weighting of Underrepresented Classes

[Forbes et al. 2010]



Stroke Vascular Territory Atlas



LOCUSuite Software Features

[click for movie](#)

Conclusion

- ▶ Tissue & Structure Segmentation for Healthy Subjects
- ▶ MS Segmentation with Bayesian Weighted Model

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