LOCUSuite: a complete software suite for brain scan segmentation

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# Table of contents

- Introduction
- **TS-LOCUS**
  - Features
  - Methodology
- **P-LOCUS**
  - Features
- **LOCUSuite Software**
  - Features
- Conclusion
LOCUSuite

Tools for Automatic Brain Scan Segmentation

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

**P-LOCUS**  Pathological MRI Segmentation.
TS-LOCUS Features

- Joint Tissue and Structure Segmentation

[Scherrer et al. 2009]
TS-LOCUS Features

- Joint Tissue and Structure Segmentation

[Scherrer et al. 2009]

Gray Matter
TS-LOCUS Features

- Joint Tissue and Structure Segmentation

[Scherrer et al. 2009]
TS-LOCUS Features

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

[Scherrer et al. 2009]
TS-LOCUS Features

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[Scherrer et al. 2009]
TS-LOCUS Methodology
P-LOCUS Features

*Automatic Segmentation of Pathological Datasets (Stroke & MS)*

- Multiple MRI Sequences
P-LOCUS Features

*Automatic Segmentation of Pathological Datasets*

- Multiple MRI Sequences
- *A Priori* Probabilistic Atlases

(Stroke & MS)
P-LOCUS Features

*Automatic Segmentation of Pathological Datasets*  
(Stroke & MS)

- Multiple MRI Sequences
- *A Priori* Probabilistic Atlases
- Joint Registration & Segmentation
P-LOCUS Features

Automatic Segmentation of Pathological Datasets
(Stroke & MS)

- Multiple MRI Sequences
- A Priori Probabilistic Atlases
- Joint Registration & Segmentation
P-LOCUS Features (Bayesian Weighted Model)
P-LOCUS Features

Multiple Sclerosis  Weighting of Underrepresented Classes

[Forbes et al. 2010]

Stroke  Vascular Territory Atlas
LOCUSuite Software Features
Conclusion

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

- Tissue & Structure Segmentation for Healthy Subjects
- MS Segmentation with Bayesian Weighted Model
- Stroke Segmentation using Vascular Territory Atlas
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Conclusion

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