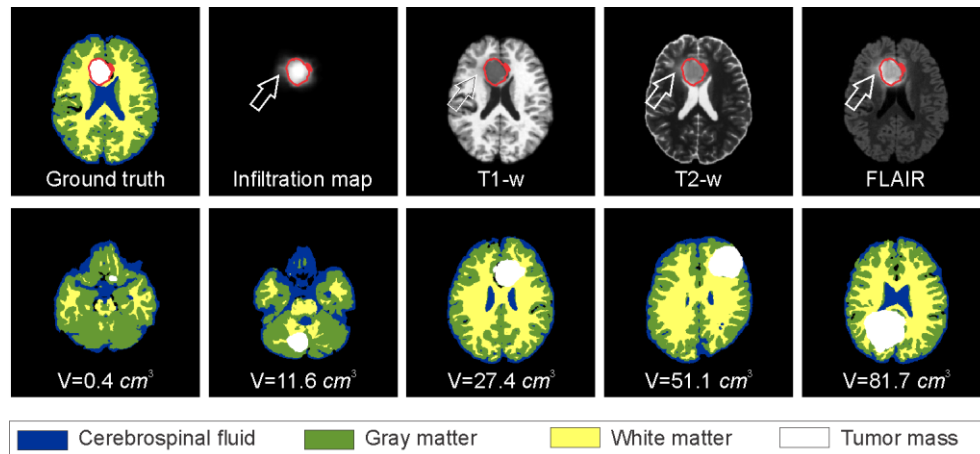


## Multimodal MR brain image database

The database consists of 100 sets of simulated multimodal MR images of brains with tumors of varying volumes with anatomical ground truth. It was created as part of validation of the robust mixture model estimation method [1]. The images were synthesized from 20 different brain phantoms of the BrainWeb<sup>1</sup> database [2] using a realistic simulator of the 3D brain tumor growth TumorSim 1.2<sup>2</sup> [3] with five different randomly placed tumor seeds.



## License

The database is released under the Creative-Commons Attribution (CC-BY) license.<sup>3</sup> Please cite the references below in any published work that uses this database.

## References

- [1] A. Galimzianova, F. Pernuš, B. Likar, and Ž. Špiclin, “Robust estimation of unbalanced mixture models on samples with outliers,” *IEEE Trans. Pattern Anal. Mach. Intell.*, 2015.
- [2] B. Aubert-Broche, M. Griffin, G. B. Pike, A. C. Evans, and D. L. Collins, “Twenty new digital brain phantoms for creation of validation image data bases,” *IEEE Trans. Med. Imaging*, vol. 25, no. 11, pp. 1410–1416, Nov. 2006.
- [3] M. Prastawa, E. Bullitt, and G. Gerig, “Simulation of Brain Tumors in MR Images for Evaluation of Segmentation Efficacy,” *Med. Image Anal.*, vol. 13, no. 2, pp. 297–311, Apr. 2009.

<sup>1</sup> Available online at [http://brainweb.bic.mni.mcgill.ca/brainweb/anatomic\\_normal\\_20.html](http://brainweb.bic.mni.mcgill.ca/brainweb/anatomic_normal_20.html).

<sup>2</sup> Available online at <http://www.nitrc.org/projects/tumorsim>.

<sup>3</sup> [http://wiki.creativecommons.org/Creative\\_Commons\\_Attribution](http://wiki.creativecommons.org/Creative_Commons_Attribution)