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# Notes: Quantification of uncertainty in longitudinal segmentation

various authors at MMIV-ML

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### 1 Synopsis

### 2 Notes on Iglesias et al.'s paper [Luca]

Notes on Iglesias et al. (2016).

- **★** TODO: Reformulate & simplify their approach in terms of a hierarchic probability distribution.
- The approximation on p. 545 left bottom can be very bad in high dimensions (MacKay 1996).
- Use of probabilistically-labelled nodes: doesn't this introduce a redundant set of variables?

## **Bibliography**

("de X" is listed under D, "van X" under V, and so on, regardless of national conventions.)

- Iglesias, J. E., Van Leemput, K., Augustinack, J., Insausti, R., Fischl, B., Reuter, M. (2016): Bayesian longitudinal segmentation of hippocampal substructures in brain MRI using subjectspecific atlases. NeuroImage 141, 542–555. DOI:10.1016/j.neuroimage.2016.07.020.
- MacKay, D. J. C. (1996): *Hyperparameters: optimize, or integrate out?* In: Heidbreder (1996): 43–59. https://bayes.wustl.edu/MacKay/alpha.pdf.
- Heidbreder, G. R., ed. (1996): Maximum Entropy and Bayesian Methods. Santa Barbara, California, U.S.A., 1993. (Springer, Dordrecht). DOI:10.1007/978-94-015-8729-7.