BAYESIAN INFERENCE OF INTRAVOXEL STRUCTURE IN DIFFUSION MRI (ThuAmPO3)

Author(s) :

Haifang Ge (Cambridge University, United Kingdom)
William J. Fitzgerald (Cambridge University, United Kingdom)
Hadrian A. L. Green (Addenbrooke's Hospital and Cambridge University, United Kingdom)

Abstract :

While diffusion tensor imaging (DTI) provides a powerful tool to reconstruct neural pathways in vivo, the standard diffusion tensor model is limited to resolve a single fiber direction within each voxel. To overcome this difficulty, high angular resolution diffusion imaging (HARDI) has recently been proposed to investigate intravoxel fiber heterogeneity. In this paper we propose a novel method for mixture model decomposition of the HARDI signal based on Bayesian inference and trans−dimensional Markov Chain simulation. The method is applied to both synthetic and real data.

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