

Evaluation of the MCFLIRT Correction Algorithm in Head Motion from Resting State fMRI Data

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Abstract : In the last few years, resting-state functional MRI (rs-fMRI) was widely used to investigate the architecture of brain networks by investigating the Blood Oxygenation Level Dependent response. This technique represented an interesting, robust and reliable approach to compare pathologic and healthy subjects in order to investigate neurodegenerative diseases evolution. On the other hand, the elaboration of rs-fMRI data resulted to be very prone to noise due to confounding factors especially the head motion. Head motion has long been known to be a source of artefacts in task-based functional MRI studies, but it has become a particularly challenging problem in recent studies using rs-fMRI. The aim of this work was to evaluate in MS patients a well-known motion correction algorithm from the FMRIB's Software Library - MCFLIRT - that could be applied to minimize the head motion distortions, allowing to correctly interpret rs-fMRI results.

Keywords : head motion correction, MCFLIRT algorithm, multiple sclerosis, resting state fMRI

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