

# Rigid Motion Correction for Brain PET/MR Imaging Using Optical Tracking

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A significant challenge during high-resolution PET brain imaging on PET/MR scanners is patient head motion, which, due to the relatively long scan-time, is often observed. This challenge is particularly significant for clinical patient populations who struggle to remain motionless in the scanner for long periods of time. Head motion also affects the MR scan data. An optical motion tracking technique, which has already been demonstrated to perform motion correction on MR data, is used with a list-mode PET reconstruction algorithm to correct the motion for each recorded event and produce a corrected reconstruction. The technique is demonstrated on real Alzheimer patient data for the Signa PET/MR scanner.

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