

Repurposing Low-Cost Consumer Technology for Motion Correction in Dementia Neuroimaging

<https://www.neurodegenerationresearch.eu/survey/repurposing-low-cost-consumer-technology-for-motion-correction-in-dementia-neuroimaging/>

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United Kingdom

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Repurposing Low-Cost Consumer Technology for Motion Correction in Dementia Neuroimaging

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MRC

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1.5

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Research Abstract

Subject motion has long been recognised as a limiting factor in many medical imaging procedures, and remains an unsolved problem, producing inaccurate data that impacts on costs and effective diagnosis/treatment. This is particularly so for the latest generation of scanners whose intrinsic resolution exceeds the ability of patients to remain still, for example in neurodegenerative disorders. Algorithms to correct for motion are well established, yet the lack of effective, affordable, reliable motion tracking hardware has prevented widespread adoption in

both research and clinical settings. Currently, there are no commercially available solutions and motion correction is limited to post-processing of scan data with its inherent limitations. PET is a well-established neuroimaging research tool, becoming ever more important for dementia in the clinic and in drug development with novel tracers for amyloid and tau offering unique biochemical information. For these patient populations motion is a significant problem. In a recent EPSRC/GSK CASE PhD, we acquired promising pilot data by repurposing a low cost mass-market consumer technology (Microsoft Kinect), coupling it with machine vision techniques to accurately measure PET head motion in real time with sub-mm accuracy providing confidence it could be developed into an effective device for the clinical environment. This is all achieved without special lighting, subject contact or attachment of markers that have compromised previous efforts. We have recently obtained evidence that this hardware will also work within an MRI scanning environment. More work is required to optimise, evaluate and commercialise our applications. We will work with Imanova, with access to key expertise, to develop the technology for PET and PET/MR research imaging in neurodegeneration where it will provide an immediate impact in particular for the new MRC Dementia Platform (<http://dementiasplatform.uk>).

Further information available at:

Types:

Investments < €500k

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United Kingdom

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N/A

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