Motion remains a prevalent issue within MR imaging potentially leading to significant artefacts and unintended smoothing. This is of particular importance when working with patients with movement disorders or dementia, or with ultra-high field imaging with submillimetre resolution. The standard quality control measures used in some MRI studies to reject or correct data based on movement parameters introduce a significant risk of bias. Motion correction at the time of data acquisition would be a better solution. This project will focus on the development of methods for prospective motion correction using a camera set up inside the MRI which tracks head movements in real time. The optimised methods will be applied to clinical translational studies in order to achieve smaller differences in motion patterns between groups; increase the signal to noise for differential diagnosis; and distinguish true brain differences from artefacts resulting from motion pattern.