**Functional data methods for human motion and interaction data**

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Advances in technology have enabled researchers in different areas (medicine, psychiatry) to accurately record how people move or interact. There is a need for new methods for analysing the usually multi-dimensional continuous data which can exploit the full information content. One promising approach uses functional data analysis. In 2010, Morrissey (Centre for Sports and Exercise Medicine, William Harvey Research Institute) obtained a small grant (£22,000), which also involved Gilmour and Grossmann from SMS, for a feasibility study on gait data from children with cerebral palsy. Morrissey and Grossmann are planning to take this further, but from the initial study it became clear that a PhD student would be required for this interdisciplinary project. The statistical methodology to be developed has a wide scope of application and would generalize to many other areas. Data for validation of the methods will be provided by Morrissey’s gait lab.