



# ISMPB

International Society for the  
Measurement of Physical Behaviour

## ICAMPAM 2015 Pre-Congress Workshops – Tuesday, June 9<sup>th</sup>

### SESSION 1

#### Workshop 1A:

**Title:** *Take Another Look at your Data - The Use of Visualisation in Understanding Complex Data Sets*

**Duration:** **14:00PM – 15:30PM (1h 30m)**

**Host:** David Loudon (Ph.D.),  
Glasgow School of Art & PAL Technologies Ltd, Glasgow, UK.

**Host Bio:** Dr David Loudon is a software engineer by training with a specific interest in the visualisation of complex clinical information for use both by clinicians and patients. He holds positions at the School of Design, Glasgow School of Art and at PAL Technologies. At GSA his research has focussed primarily in the context of understanding healthcare datasets including: the visualisation of biomechanical data for rehabilitation of older adults and patients with stroke; and the use of visualisation to communicate information on the microscopic pathogens responsible for Healthcare Associated Infections. At PAL he is working on innovative approaches to analyse and visualise physical behaviours from accelerometer data.

**Description:** Conventional approaches in data analysis are often data-centric and fail to address the needs of the clinical subject or population. For example conventional lab based gait assessment provides detailed insights into the biomechanical expression of the impairment but this information is not easily accessed or understood by the therapist or patient and so patient engagement in the therapeutic process is undermined. Similarly, in the field of physical activity assessment, existing methodologies have been largely based on the estimation of free-living energy expenditure and paid little regard to the behaviours and activities generating the energy expenditure. This workshop will address ways in which data analysis and visualisation can be made person-focused, bringing the patient or participant needs to the centre and where appropriate engaging them with the performance measures directly.

#### Topics:

- Challenges in using current methods of visualisation
- The opportunities offered by alternative approaches
- Understanding what is important about our study populations
- New techniques to communicate person-centred outcomes in physical activity and behaviour measurement
- Interactive analysis of sample data sets and group discussion



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## Workshop 1B:

**Title:** *Body Worn Monitors: Sensor Configuration and Understanding the Underlying Hardware*

**Duration:** **14:00PM – 15:30PM (1h 30m)**

**Host:** Cas Ladha (Ph.D.),  
Computing Science, Newcastle University, Newcastle, UK.

**Host Bio:** Dr Ladha holds a MEng in Electronic Communication Engineering and a PhD in Wireless Sensor Networks. He sits as a SRA within the Computing Science faculty. Currently his time is split over a number of projects, all of which have an embedded or pervasive technology theme. His research interests predominantly lie within health and wellbeing. Put simply, this means he spends the majority of his time applying technologies or designing new technologies to improve people's lives both physically and mentally. While some of this work is very practical, e.g. re-designing old medical technologies, at other times it is quite exploratory and experimental.

**Description:** The purpose of this workshop is to disseminate engineering practice for body worn monitor (BWM) design and development to those in the applied clinical sciences. Quite often BWM are chosen for clinical studies without understanding their true measurement capabilities. This workshop will strip back BWM to show exactly what they can/cannot measure with demonstrations on how all commercial/research BWM have the same underlying functionality. In addition an overview of where the engineering developments should focus for future developments will be presented.

## Topics:

- Accelerometers, gyroscopes and magnetometers
- Body worn monitors (BWM) – what's the difference?
- Engineering effort
- Future developments



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## SESSION 2

### Workshop 2A:

**Title:** *Body worn monitors: sensor configuration and understanding the underlying hardware*

**Duration:** **15:45PM - 17:15PM** (1h 30m)

**Host:** Alan Godfrey, (Ph.D.)  
Institute of Neuroscience, Clinical Ageing Research Unit, Newcastle University, UK.

**Host Bio:** Dr Godfrey holds a PhD in Biomedical Electronics (University of Limerick) and is currently a Research Associate within the Human Movement Science Team at Newcastle University. The theme of his work focuses on translational research using body worn monitors (BWM): applying signal processing, algorithm development and data analysis techniques to develop biomarkers in chronic disease (Parkinson's, Dementia) and ageing research. Some of his current work includes input to the Medical Research Councils Dementias Research Platform UK, the world's largest population study for use in dementias research.

**Description:** The purpose of this workshop will be the quantification of gait characteristics using body worn monitors (BWM) from instrumented tasks within the laboratory (micro) to habitual ambulatory behaviour (macro) in the community, i.e. 7 day data. Current algorithms to quantify gait characteristics will be presented and discussed along with current challenges in the analysis of micro-based gait data gathered in the community. In addition current macro level analysis of gait (ambulatory behaviour) will be discussed with avenues of potential analysis presented.

### Topics:

- Data capture
- Algorithms
- Instrumented testing - gait
- Micro and macro gait analysis: 7 day data sets



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## Workshop 2B:

**Title:** *Grant Proposal Writing*

**Duration:** 15:45PM - 17:15PM (1h 30m)

**Host:** Lisa Chasan-Taber (Sc.D.),  
University of Massachusetts, Amherst, Massachusetts, USA.

**Host Bio:** Dr. Lisa Chasan-Taber has taught proposal and grant writing for over 15 years, during which time she has been continually funded as a principal investigator of National Institutes of Health Research Awards and has been recognized for her research through the Chancellor's Medal, the highest recognition bestowed to faculty by the University of Massachusetts, Amherst. She has served as a permanent member on national review panels and as a mentor on Career Development Awards. She received her post-doctoral and doctoral training in epidemiology from the Harvard School of Public Health, master's degree in public health from the University of Massachusetts Amherst, and bachelor's degree from the University of Pennsylvania.

**Description:** This workshop will target effective grant proposal writing at a time when applying for research funding has never been more competitive. Covering all aspects of the proposal writing process, the workshop is geared for early-stage investigators including graduate students and postdoctoral fellows, but also valuable for experienced faculty, clinicians, epidemiologists, and health professionals who cannot seem to break the barrier to obtain funded research.

## Topics:

- 'Ten Top Tips for Successful Proposal Writing': Including how to avoid common errors and pitfalls, supplying critical "do's and don'ts" that aid in writing solid grant proposals
- Step-by-step guidelines and strategies for the development of specific aims and hypotheses alongside broader strategies for developing a research funding portfolio
- Techniques for presenting study limitations and alternatives
- Strategies for responding to reviewer comments and resubmitting the grant proposal
- Demonstration of tactics and illustration of key concepts with extensive examples from successfully funded proposals