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Riedel, Gernot, Grant, Robyn, Sullivan, Matthew and Spink, Andrew (2020) Preface: Special issue on Measuring Behaviour 2018. Journal of Neuroscience Methods, 337. p. 108681. ISSN 0165-0270

DOI: https://doi.org/10.1016/j.jneumeth.2020.108681

Publisher: Elsevier

Version: Accepted Version

Downloaded from: https://e-space.mmu.ac.uk/625839/

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Preface: Special Issue on Measuring Behaviour 2018

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On the 6-8th of June 2018, we convened the eleventh Measuring Behavior conference at Manchester Metropolitan University. Main local organisers were Robyn Grant and Matthew Sullivan, and together with the Noldus team brought excellent science, good humour and an international audience to central England.

In this special issue, we have assembled a small selection of key papers reflecting a cross section of what was presented. These include presentations and posters alike and are relevant for the audience of the Journal of Neuroscience Methods.

A novelty to our otherwise traditional layout was a workshop on the utility of core facilities, their outlines for different users, their approaches for setting up and their importance for reproducibility and training of personnel. These different approaches are summarised by **Likowski** et al. The paper describes both advantages of use of and collaboration with core facilities from the perspective of the researcher, but also from the managerial point of view how to run it. An important and scientifically highly relevant issue concerns the increased sophistication of methods. This is addressed together with the quest for standardisation and the flexibility to cater for different species.

Two papers are relevant for movement disorders. In their contribution on hand movement research, **Matic & Gomez-Marin** describe a new app for android tablets that enables hand movement recording outside the laboratory at a quality as good as within laboratory solutions. They introduce the app and give example protocols and reveal its flexibility, affordability and high resolution. In the second paper, **Bek** and co-workers use eye-tracking to record emotions in Parkinson patients. The group for the first time directly compared static and dynamic facial expression and deduced the emotional responses on patients through eye movements. Subtle differences occurred, especially when dynamic stimuli are presented.

In terms of animal behaviour, several papers deal with whisper and movement and locomotor activity in rodents. **Gillespie** and co-workers introduce the new system LocoWhisk. It offers standardised software and hardware solutions for the simultaneous recording of whisker movements and gait analysis. Animals are placed in the LocoWhisk arena and recorded by high-speed camera and the detector algorithms (ARTv2) produce data like what has been published by established tools. Recommendations for the conduct and analysis of whisker movement and gait analysis are presented by **Simanaviciute** and colleagues. By standardisation of protocols and comparison across multiple mouse models of diseases and background strains, the authors recommend that deficits in whisker movement and locomotion are best recorded synchronously and analysed together in structureless open field. For the detection of sensory impairments, more complex environments containing obstacles are better suited. A data mining procedure is introduced by **Timotius** and colleagues have used the CatWalk for investigations into Parkinsonian

mice. By employing a complete data mining protocol, in which all parameters available from the video recording are summarised and heat mapped, they produce a new way of data analysis and report on previously not considered outputs of relevance. This is a significant improvement and avoids data bias compared to presenting parameters preselected a-priori.

Another advanced video-based analysis approach was presented by **Haalck** et al. They used hand-held (or drone operated) video cameras to record animal behaviour and applied a 'video-key frame selection scheme combined with geometrically constrained image stitching algorithms' to extract meaningful animal trajectories in a two-dimensional panorama reflecting the environment. Data presented are accurate reflections of the animals moving in space and methods for enhancement of the current methodology for upgrading to real time imaging are explored. A different approach is applied by **Peleh** and associates for the study of social behaviour in groups of animals. Subjects were equipped with radio-frequency identification chips (RFID) and in combination with vide tracking, the software tool (Socialscan) extracts pre-defined interaction events between mice. The authors report details of the tool and its validation by observing groups of C57BL/6J mice over several days in ethologically relevant contexts. Finally, **Thomson** et al. present another video-based analysis tool, which they term the Chromatic Fish Analyser. Combined recording of hue (horizontal camera) and spatial location (vertical camera) of the fin-clipped fish enabled separation of multiple individuals (here up to 6) by spatial chromatic analysis. Tank applied lidocaine lead to significant alterations in fish behaviour which was traced accurately with this system.

This was the second time Measuring Behaviour was held outside Netherlands, and it was a big success. As we write this Editorial, preparations are in full swing for the next meeting in a couple of months. We hope you will be joining us at Measuring Behavior in Krakow, Poland, from 27-29 May 2020.

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