

Are you forced to measure FORCE?

Force is fundamentally tied to every movement we make. It's what drives an athlete into the air, or propels him/her down a track. No biomechanical assessment is complete without an understanding of every single dimension of the forces involved.

Whether external force measurements are an important aspect of your work, or you simply want to learn more about what they can provide, this workshop is for you.

The main focus of this workshop will be on technological advancements and techniques involved in the assessment of ground reaction forces. In addition, the lectures and demonstration will aim to place everything in perspective of human performance measurement.

The workshop will be delivered by *Pr. Nachiappan Chockalingam and Cindy Samaan*.

Speaker Profiles:



Nachiappan Chockalingam is the Professor of Clinical Biomechanics at the Faculty of Health Sciences, Staffordshire University. Nachi directs the Biomechanics Facility and leads the Biomechanics team. He is also an Affiliate Professor at the Faculty of Health Sciences, University of Malta and a Visiting Professor at Sri Ramachandra University, India. He is a Chartered Engineer, a Chartered Scientist and a member of various professional organisations. Nachi was elected to and served as a member of the Engineering Group Board at the Institute of Physics and Engineering in Medicine and had been elected and served as the Secretary of Footwear Biomechanics Group; a technical group of the International Society of Biomechanics.

His research interests span the general area of biomechanics and gait analysis with a special interest in foot and footwear biomechanics. To date, he has numerous publications in peer-reviewed journals, book chapters, and conference proceedings. Nachi serves on the editorial board for a number of international journals and he reviews for several international grant funding bodies.

Cindy is a member of the team at AMTI. Drawing on her background in Engineering and Biomechanics she provides technical guidance to researchers and aids in product development. She holds a Master's in Mechanical Engineering, specializing in Biomechanics and previously worked as a researcher. She studied a range of topics related to human movement, such as running mechanics and their relationship to injury

mechanisms and the affect of strength training on function in adolescents with cerebral palsy.

Description of the workshop:

Three dimensional measurement of force forms an integral part of human performance assessment in a sport and exercise setting. Amongst various technologies used for force measurement that could help in effective evaluation of physical activity, force platforms are commonly used in a variety of sport and physical activity settings. They provide information that aids in the assessment of individuals and the design of specific coaching or exercise interventions. Furthermore, they play a crucial role in the evaluation of such interventions. This workshop, whilst outlining the differences in technology and the usefulness of force data, will highlight potential issues relating to the variability in the data collection procedures and the type of system being employed.

The workshop will also highlight and discuss the applicability of force measurement beyond the traditional approaches with a focus on balance, posture, sports and asymmetry. To conclude, the facilitators will pose questions on the future of force assessment emphasising the need not only for accurate assessment of force, but also for the use of other data and technologies in conjunction with force measurement.

By the end of this event the participant will:

- Understand the basic theoretical underpinning of force assessment using force platforms
- Have a broad overview of :
 - Technologies involved
 - Various commercially available systems
- Understand the information derived from these systems which will help in coaching/ exercise intervention
- Understand the importance of sensitivity and accuracy in assessing ground reaction force.

The workshop will include background lectures, a review of case studies involving sport and exercise data and a hands-on demonstration of a force platform to highlight its capabilities.