**Title: Computational Intelligence Techniques in Gait Data Modelling**

**Abstract:** Analysis of the walking gait underpins research in many medical and applied health science domains, such as clinical gait analysis, sport performance, ageing, and rehabilitation. The common goals are evaluating locomotor function to detect abnormalities, determining effects due to ageing, disease, or trauma and evaluating systematically the individual’s walking pattern. Traditional statistical techniques have provided only limited success in describing the complex relationship between various measures and the overall gait functional state. On the other hand, greater successes have been reported using non-linear modelling of human gait such as the artificial neural networks, support vector machines and fuzzy clustering. This talk will focus on some of the recent research undertaken in the area of computational intelligence techniques applied to diagnosis and assessment of gait function.

**Biography:** Professor Rezaul Begg leads a multidisciplinary team of 12 researchers at Victoria University. He is the Director of Biomechanics Research Laboratory in the College of Sport and Exercise Science, and Institute of Sport, Exercise and Active Living (ISEAL). His main area of research concerns human gait biomechanics with a focus on developing new technologies and techniques to better understand gait abnormalities. These techniques have been applied to the problem of understanding gait changes due to ageing and how to reduce the risk of falling due to tripping or slipping-related balance loss. His research group has a unique focus in Australia and is one of the few worldwide having the expertise to combine computational intelligence and portable sensor technologies to quantitatively describe human movement. He has published 212 refereed research publications in these areas including 60 journal articles, 4 books, 1 research monograph, and 1 patent.

Professor Begg is a senior member of the IEEE Engineering in Medicine and Biology Society (EMBS), and the IEEE Computational Intelligence (CI) society. He is an Associate Editor of the IEEE Engineering in Medicine and Biology Society (EMBS) Conference Editorial Board in the Theme area of "Biomechanics and Biorobotics". He has served as a member of the Technical Program Committee for more than twenty International Conferences.