



# Health Technology Management Unit International Alumni

Health Technology Management Unit's rich history has seen numerous medical engineering and physics staff who are currently making a significant contribution overseas.



## **Philip C. Noble, PhD (January 1976 to January 1982)**

Philip joined the Bioengineering Division, taking up the newly created position of Project Bioengineer in 1976. He completed a Master of Engineering Science from Melbourne University in Metallurgical Engineering and undertook medical preclinical courses in anatomy and physiology at UWA in a transition to Biomedical Engineering (Bioengineering) while at Royal Perth Hospital (RPH). Philip was closely involved in establishing RPH's rehabilitation engineering program and made a significant contribution to the work of the Orthopaedic Department in the areas of biomaterials, failure analysis, surgery and implant development. He was awarded a Sir Winston Churchill Memorial Fellowship in 1979, primarily in relation to rehabilitation engineering and travelled extensively in the UK, Europe and the USA.

Philip left the Department in 1982 to take up the position of Technical Director at the Institute of Rehabilitation and Research, Texas Rehabilitation Engineering Center, at Baylor College of Medicine in Houston, Texas. In 1984 he transferred to the Division of Orthopaedic Surgery as Director of Orthopaedic Research. After completing his PhD at the University of Strathclyde under the direction of Professor John Paul in 1995, Philip advanced to the rank of Professor in the Joseph Barnhart Department of Orthopaedic Surgery. He also occupied the John S. Dunn Endowed Chair in Orthopedic Surgery (Research) at The Houston Methodist Hospital from 1994 to 2015. Recent changes will see the program shift to the University of Houston to be part of a new Innovation and Research complex.

Philip's career is noteworthy for numerous honours and awards for his research in hip and knee arthroplasty and sports medicine, including, most recently, the Lifetime Achievement Award of the international Society for Hip Preservation (ISHA). He is also the Co-editor for Research at the Journal for Hip Preservation Surgery and is the Chairman of the Program Committee of the International Society of Technology in Arthroplasty (ISTA). Philip is a member of The Hip Society, The Knee Society and the International Hip Society and has an extensive CV referencing 190 published articles (29 as first author), 2 books and 29 book chapters (17 as primary author). He also holds 28



patents related to developments in orthopaedic engineering. Philip is the co-designer of numerous hip and knee replacements and related instrumentation that have been used throughout the world, including the Persona Knee System that has now been implanted in over a million patients.



### **Warren MacDonald, PhD (May 1982 to September 1985)**

Warren joined the Bioengineering Division in May 1982 to fill the post of Project Bioengineer, based at RPH. He joined the department with a B.Eng in Materials Engineering from Monash University and completed an M.Phil from Leeds University (1986) and a PhD from the University of Gothenburg (2000) in Bioengineering, subsequent to his employment at RPH.

Warren's role with the Bioengineering Division concentrated on the delivery of orthopaedic services, making a significant contribution in the areas of biomaterials, the analysis of implant failure and application of engineering design in relation to problems identified in theatre and the delivery of complex surgical fixation and reconstruction. His thesis work (investigating the properties of bone and bone cement and component integration in total hip arthroplasty) reflects work delivered while at RPH.

Warren has been engaged in research and teaching at Imperial College, London since 2008; as Research Associate, Programme Leader in the tRBL in the Centre for Blast Injury Studies and latterly as Senior Teaching Fellow (2012) in Bioengineering, lecturing to undergraduate and postgraduate students and orthopaedic trainees. As at 2019, he has 34 publications and is cited in six patent submissions. You can view Warren's publication history on the [Research Gate website](#).



### **Thomas M. L. Shannon PhD. (November 1978 to July 1984)**

Tom joined the Department in a trainee physicist position in November 1978. He was subsequently appointed (July 1980) as an Electronic Engineer to the Technical Services Division to work in a development role. He joined with B.Sc and B.App.Sc. qualifications and upgraded these to an M.Sc while with the Department. He contributed significantly to the work of the Bioengineering Division during rotation as a trainee and was involved in using moire topography as a tool to screen for idiopathic scoliosis and the development of systems for use in the clinical biomechanics laboratory.

Projects at the time included the processing of signals from analog video camera systems used to track markers on the body for time sequence studies of limb movement during walking and the synthesis of a load vector generated from the Kistler load

platforms data for real time superimposition on the video of patient ambulation. Other projects related to cardiology and cardio-thoracic treatment.

Tom was supported by the hospital to take up a British Industry Overseas Scholarship that included the study of methods for the measurement of idiopathic scoliosis and exposure to the VICON system for motion analysis being developed as a niche product within Oxford Instruments. In 1984 Oxford Instruments decided to divest themselves of motion analysis and Tom subsequently left the Department to take up a position as General Manager with newly formed Oxford Metrics Ltd in 1984 formed to progress development of the VICON system. As a co-founder of the Oxford Metrics Group, he is a founder and current Director of the successful motion capture tech company Vicon Motion Systems that is an industry leader making a substantial contribution to motion capture used in film production and animation, gait analysis, measurement in the life sciences and the analysis of idiopathic scoliosis.

Tom has written about Oxford's contribution to motion analysis, which you can read on the [Vicon website](#). Vicon has won multiple awards, including its first Queens Award in 2001 for Export and Innovation, as well as an Emmy and an Academy Award for technical achievement.