

# March 2017



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# List of new members, March 2017

By Ed Chadwick | March 2017

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## Biographies for 2017 Student Representative Candidates

By Ed Chadwick | March 2017



**Kevin Boldt**

Kevin Boldt is a first year PhD student studying under the supervision of Dr. Walter Herzog in the University of Calgary's Human Performance Laboratory. His research focuses on mechanical adaptations of the heart, in response to exercise training. Currently, he is the President of his Faculty's Graduate Students' Association, where he is responsible for overseeing networking events and career development seminars. He also serves on the Senior Leadership Team of the University of Calgary Graduate Students' Association to represent graduate student interests across campus. At the national level, he is the Student Director on the Board of Directors for the Canadian Society for Exercise Physiology. He plans to utilize the experience he has obtained from these local and national level positions to contribute internationally through the ISB.

Kevin's primary goals as the student representative would be to build on the already successful programs developed by the ISB (student networking events, newsletters, etc.), and to initiate a novel one-on-one mentorship program which would match students with academic or industry mentors attending ISB 2019. This opportunity would allow students to connect with academic or industry leaders over coffee to discuss career options and career development. As a student in Calgary (the host of the 2019 ISB meeting), he is uniquely situated to plan engaging student networking and practical career development activities during this meeting. Building off his previous experience and the goals he has outlined for the position, he is excited to be considered as the ISB student representative.



**Melissa Boswell**

Melissa Boswell is a Bioengineering PhD student at Stanford University. She received her BS in Biomedical Engineering from the University of Akron, where her research focused on orthopedic biomechanics and diabetic foot ulceration under the supervision of Dr. Brian Davis. Melissa's passion for biomechanics also stems from her interests in marathons, triathlons, and rock climbing. She gained additional experience as a crash safety engineer at Toyota Technical Center utilizing finite element analyses to improve vehicle safety. This led to a research opportunity at Wake Forest University, where she improved the biofidelity of human body models used to analyze injury mechanisms. Upon graduation, she was fortunate to receive an ISB Student International Travel Grant to conduct experimental studies at the University of Cape Town. Besides performing dynamic testing of biological tissues, she thoroughly enjoyed the opportunity to mentor students in the areas of mathematics and physics. In her doctoral studies at Stanford, Melissa is supported by the National Science Foundation. She is currently creating patient specific brain models as a means for understanding concussion injuries.

"As the ISB Student Representative, I would like to build upon my experiences building student teams - as I did as President of a Biomedical Engineering Design team in Ohio, and as a mentor at the University of Cape Town. I am excited by connecting people and solving universal problems. By encouraging engagement in ISB programs, we can take advantage of the interdisciplinary nature of biomechanics and form connections throughout the world."

## **Biographies for 2017 Council Candidates**

By Ed Chadwick | March 2017



**Daniel Benoit, Canada**

Born in Ottawa Canada, Dr. Daniel Benoit worked for three years as director of a clinical biomechanics laboratory in Perugia Italy before moving to Stockholm-Sweden where he was awarded his PhD from the Karolinska Institutet (2005). He then completed a postdoctoral fellowship in Biomedical Engineering at

the University of Delaware (2006). In 2007 he returned to Canada and joined the University of Ottawa, where he is an Associate Professor in the Faculty of Health Sciences and member of the Ottawa-Carleton Institute for Biomedical Engineering. Dr. Benoit's research focuses primarily on human movement biomechanics and neuromuscular control, in particular knee injuries and the dynamic stabilisation of the lower limb.

He attended his first ISB Congress in 1999 and has been an active member ever since. He speaks English, French, Italian and Swedish and his international experience makes him ideally suited for the ISB executive. Over the past two years he has been the ISB Sponsorship Officer and believes the ISB needs to reinforce its position as the premier society representing the broader international biomechanics community. He would like to create new sponsorship models accessible to smaller companies and promote initiatives aimed at maintaining the long term viability of the society.



**Thor Besier, New Zealand**

Thor is an Associate Professor at the Auckland Bioengineering Institute and Department of Engineering Science at the University of Auckland. He completed his PhD at The University of Western Australia (2000) and was a postdoc in Bioengineering at Stanford from 2003-2006. He joined the Department of Orthopaedics at Stanford (2006-2010), before returning home to New Zealand in 2011. Thor's research combines medical imaging with computational modelling to understand mechanisms of injury and disease. Thor leads an open source software initiative called the Musculoskeletal Atlas Project (MAP) to facilitate the rapid generation of subject-specific musculoskeletal models.

Thor has been a member of the ISB since 1996 and has enjoyed the ISB meetings since attending his first ISB meeting in 1999. He is on the organising committee for the 2017 ISB Congress in Brisbane and is active in strengthening the Australasian biomechanics community. Thor has been the IT Officer on the ISB Council for the last two years and hopes to maintain this role for another term, since it has taken two years to 'figure it all out'. He is enthusiastic about growing the ISB membership and supporting early career researchers.



**Felipe P Carpes, Brazil**

Carpes is a professor at the Center for Health Sciences of the Federal University of Pampa, in Brazil, and currently is the president of Brazilian Society of Biomechanics. He conducts research projects within the

research group on applied neuromechanics, and collaborates in a number of projects with national and international partners. His research focuses on developing a basic understanding of the production and regulation of movements with studies in humans and other animal models, and applying this information to training and rehabilitation. He develops actions for popularization of science and development of biomechanics in EDC, by organizing online webinars, congresses, and advertising opportunities promoted by the ISB for members.

He says: "In the last two years I had the chance to collaborate with the ISB as a member of the executive council. My portfolio was the EDC officer. If elected for another turn, I will keep working to develop biomechanics in EDC by helping in the establishment of new societies, advising new members about how they can be more active in the ISB, and helping people from EDC to leverage their groups and research projects by promoting interaction between scientists and students members of ISB."



**Elizabeth Clarke, Australia**

Elizabeth Clarke is a Senior Lecturer at the University of Sydney, and Director of the Murray Maxwell Biomechanics Laboratory at the Kolling Institute. She has backgrounds in Biomedical Engineering and Science and was awarded her PhD in 2008. She researches the links between injury mechanisms and pathology.

Elizabeth is currently the representative for Australia on the Asian Pacific Association for Biomechanics (APAB) and on the ISB2017 organising committee. She has served the Australian and New Zealand Society for Biomechanics (ANZSB) continuously since 2009: Communications Officer (2009-11), Secretary/Treasurer (11-14), President (14-16) and now Past-President.

Elizabeth is keen to broaden her service to the international biomechanics community. She has well-established connections with the biomechanics community in the Asian Pacific region through ANZSB and APAB, and would see this as an opportunity to further strengthen links between our members and committees. Elizabeth is also a passionate advocate for gender equity and would promote gender balance in the biomechanics community; e.g. editorial and committee positions and conference speaker representation. She is also a keen supporter of developing career and mentorship opportunities for graduate students and early career researchers - having recently come out the other side of this difficult career stage!



**Catherine Disselhorst-Klug, Germany**

Catherine Disselhorst-Klug is Professor at the RWTH Aachen University, Germany, where she is the head of the Department of Rehabilitation & Prevention Engineering. Her strong background in engineering science in combination with her expertise in movement physiology forms the basis for her recent research activities which aim to understand physiological and pathological movements based on biomechanics and neuromuscular performance. Her particular research interests are focused on the development of methods improving prevention, diagnosis and rehabilitation of musculoskeletal dysfunction. Catherine is with the ISB since 1995. She is the responsible award officer since elected as a member of the ISB council two terms ago.

She says: "ISB is an outstanding community of colleagues and friends with passion for biomechanics and offers a unique platform to various related disciplines. By creating and linking interfaces between these different disciplines ISB will bridge from basic research to practical application. This includes science transport through education and training to the next generation of young investigators. Teaming-up is the basis for the creative atmosphere of ISB in which rise new ideas and innovative approaches. Therefore, it will be a pleasure to me serving the ISB as executive council member for a third term."



**Zac Domire, USA**

I am currently an Associate Professor of Kinesiology at East Carolina University. I received my Ph.D. in kinesiology from The Pennsylvania State University and completed post-doctoral training in biomedical engineering at The Mayo Clinic. My primary research interests are aging, skeletal muscle mechanics and the simulation of human movement. I attended my first ISB Congress in 1999 as a graduate student. My experiences at this meeting helped shape my interest in pursuing biomechanics research as a career. Since this meeting, I have attended whenever possible. This year will be my fourth consecutive and the seventh of the last ten congresses that I have been lucky enough to be able to attend. For the last three years, I have served on the ISB Student Grant Committee. This work has reinforced my view of the great potential of the ISB to help develop the careers of young biomechanists and increased my motivation to serve the ISB. I view serving on the council as an opportunity to give back to a society that has made a big impact on my career. I would be particularly excited to work on initiatives to enhance research in economically developing countries and encourage international travel for students.



**Taija Finni, Finland**

Taija Finni is a Professor of Kinesiology at the University of Jyväskylä, Finland. She received PhD in biomechanics in Jyväskylä in 2001 and spent post doc years at UCLA. Prof. Finni's research ranges from basic neuromuscular function to translational research related to physical activity and sedentary behavior. As a long-term member of the ISB she was elected to executive council in 2015 where she has served as an education officer. She is active promoter of biomechanics among the students at her home university but also in other forums such as in European College of Sport Science where she is a member of the scientific council. She serves as senior section editor in the Scandinavian Journal of Medicine and Science in Sports and belongs to the editorial board of Clinical Biomechanics.

If elected, Professor Finni will work to improve the participation of young scientists in the ISB. "I was fortunate to participate in ISB congresses very early in my research career and the passion and belonging of the biomechanics community inspired me", she says. She is also keen to promote talented female researchers, who are traditionally under-represented in major scientific societies, and to facilitate international collaborative multi-disciplinary research.



**Mark King, England**

Mark is a Reader in Sports Biomechanics at the School of Sport, Exercise and Health Sciences, Loughborough University, UK (named as the world's best sport university, QS World University Rankings 2017). Mark completed his PhD at Loughborough in 1998 before being appointed as a Lecturer in 1999, Senior Lecturer in 2006 and Reader in 2012 plus Associate Dean for Enterprise with the School in 2017.

Mark's research focuses on using subject-specific forward dynamics computer simulation models to understand optimum performance and injury risks in sport. A recent example of this is his research using subject-specific simulation models with the England and Wales Cricket Board to inform the coaching of English fast bowlers. Mark has been a member of ISB since 1995 attending all but one of the ISB Congresses, and has also been an active member of the ISB Technical Group on Computer Simulation (TGCS) over the same period including being a board member 2005-2010 and chairing the group since 2010.

By being elected to the executive council, Mark hopes to strengthen the links between ISB and the International Society of Sports Biomechanics and help the development of Biomechanics as an area of study throughout the world.





**Alberto Leardini, Italy**

Alberto has worked at the Movement Analysis Laboratory, Istituto Ortopedico Rizzoli - Bologna (Italy) since 1990. He received the Doctor of Philosophy (DPhil) in Orthopaedic Engineering (2001) at the University of Oxford. His initial research focused on methodological issues and clinical applications of human motion analysis. His focus in the methodologies for orthopaedic treatments has evolved then to encompass three-dimensional videofluoroscopy, radiostereometry, and surgical navigation. In his DPhil he made fundamental progresses on the mechanical modeling and prosthesis design of the ankle joints complex. His total ankle replacement has been implanted in thousands of patients. He is now looking at custom designs of this and other articulations.

He has served on several national and international scientific communities, including the founding member of the Società Italiana di Analisi del Movimento in Clinica (SIAMOC), International Foot & Ankle Biomechanics community (i-FAB), and Italian Digital Biomanufacturing Network. He has been President of the Technical Group of 3-D Analysis of Human Movement, and Council Member of the ISB (Student Grants officer since 2013). He strongly believes in the fundamental role of scientific communities not only for uniting efforts and promoting the discipline, but primarily for providing education and opportunities for younger and emerging researchers.



**Li Li, USA**

Li Li is a professor at Georgia Southern University. Professor Li received his PhD with Biomechanics training from University Massachusetts. He worked at Louisiana State University from 1998 to 2012 (as Endowed professor, 2006-2012) before moving to current position. Professor Li has studied running related injuries using traditional inverse dynamics, inter-segmental methods, and also dynamic systems approach. Professor Li studied neuromuscular control of cyclic human movements during trunk flexion / rotation, walking, running, cycling among different healthy or pathological populations. Comprehensive publication record can be found at:

[https://scholar.google.com/citations?hl=en&user=N1n5Z-oAAAAJ&view\\_op=list\\_works](https://scholar.google.com/citations?hl=en&user=N1n5Z-oAAAAJ&view_op=list_works)

Professor Li has actively participated ISB since 1999 - attended and presented in the past nine congresses; on behalf of ISB attended 2008 Chinese Association of Biomechanics in Sports annual meeting with professor Walter Herzog and presented the ISB sponsored New Investigator Award during the meeting; and participated ISB development project at the University of the Andes (Merida,

Venezuela) with professor Joseph Hamill in 2010. Professor Li hope to serve on the ISB Executive Council in order for him to contribute to the development of the organization, to promote biomechanics education and research worldwide, and to encourage communication and collaboration among biomechanists from different parts of the world.



**Glen Lichtwark, Australia**

Glen Lichtwark is an Associate Professor in the School of Human Movement and Nutrition Sciences at The University of Queensland, Australia. He received his PhD from University College London in 2005 and has worked at the Royal Veterinary College, Imperial College London and Griffith University prior to his current appointment. His research is primarily focused on muscle mechanics and energetics, employing both experimental and simulation approaches to understanding human and animal muscle function and dysfunction.

Dr Lichtwark has been an ISB member since 2003 and has served as an Education Officer in the ISB Council since 2015 and is on the Program Committee for the ISB2017 conference in Brisbane, Australia. He has developed many important international collaborations through the ISB, which have enabled him to develop broad skills that are applicable across different fields of research. He believes in the role that the ISB plays in fostering new and innovative research approaches and values the diverse range of work undertaken across the society. He believes that re-election to the council would enable him to continue to foster interactions across continents and specifically to ensure that mechanisms exist for students to travel and interact with leaders in biomechanics.



**Yu Liu, China**

Dr. Yu Liu received his Ph.D. in biomechanics from the University of Frankfurt/M and completed his postdoctoral fellowship at the German Sport University, Cologne. He is Distinguished Professor of Chang Jiang Scholars, awarded by the China Ministry of Education, and currently serves as the dean of the School of Kinesiology, Shanghai University of Sport. Dr. Liu's research focuses on neuromuscular control of human movement and sport engineering. He has served as an executive council member of the ISB (2013-2015), as vice president of the Asia Association of Coaching Science, and as a member of the standing committee of the Chinese Association of Biomechanics. He has published more than 200 peer-reviewed articles and 6 book chapters and holds over 10 patents in China and the U.S. Currently, Dr. Liu serves on the editorial board of several national and international journals, including *China Sport Science*

and the *Journal of Sport and Health Science*.

The mission of ISB is incredibly important to me as reflected in my own scientific interest and research passion. If elected, working collaboratively with colleagues and researchers in China and around the world, I intend to expand the network of ISB by hosting its first ISB Congress in China.



**Rajani Mullerpatan, India**

Dr. Rajani Mullerpatan is a Professor at University Department of Physiotherapy, MGM Institute of Health Sciences (MGMIHS), Navi Mumbai, India. She grew in the field of biomechanics during her PhD with Prof. Robert Van Deursen at Research Centre for Clinical Kinesiology, Cardiff University, UK.

On returning to India, Rajani strived to establish MGM Centre of Human Movement Science (MGMCHMS) at MGMIHS to address to an urgent need of integrating clinical biomechanics in Indian healthcare. With generous support from ISB and BETiC at IIT Bombay, MGMCHMS was established in 2015. The vision of the Centre is to generate a task-force to undertake research and develop the science of clinical biomechanics further in India by conducting integrated training for clinicians and engineers. Ongoing observer ship, guided tours and short-term courses are conducted to build awareness and knowledge of biomechanics across among clinicians, students and faculty members of healthcare and engineering. Intense efforts to deliver a triad of clinical service, research and training programs in clinical biomechanics continue at MGMCHMS.

Rajani is extremely grateful to ISB for providing immense support to establish MGMCHMS. She is keen to give back to ISB-EDC by sharing her novice experience of promoting clinical biomechanics and building an inter-disciplinary task force within India.



**Dieter Rosenbaum, Germany**

Prof. Rosenbaum is an internationally acknowledged researcher in biomechanics and human movement science. Following his studies in Münster, Iowa and Essen, Prof. Rosenbaum worked as a research fellow at the University of Ulm prior to becoming the director of the motion analysis laboratory at the University Hospital in Münster.

The investigation of foot-related orthopedic problems and their treatment options is one of his main areas of interest. Prof. Rosenbaum (co-)authored over 160 listed publications, serves on the editorial board of

several key journals in our field, served as former president of the German Association of Biomechanics and was multiply awarded for his research.

I have been a member of the ISB since 1991 and, since then, have attended many ISB Congresses where I enjoyed the friendly and stimulating atmosphere of the 'biomechanics family get-together'. If elected I would like to contribute to issues related to international collaborations with other societies and help to develop new bonds with countries that are not yet strongly related to the ISB.

## **Biographies for 2017 President-Elect Candidates**

By Ed Chadwick | March 2017



**Toni Arndt, Sweden**

I am honoured to have been nominated for election as President Elect of the International Society of Biomechanics. My personal academic journey reflects the ISB's quintessentially international orientation and I have been privileged to experience biomechanics in many different cultures, different laboratories and with fantastic people. From undergraduate studies in New Zealand and Australia I moved to the German Sport University, Köln, for my PhD and then to the Karolinska Institute in Sweden as a post-doc. At present I am professor in biomechanics, specializing in muscle-tendon function and sports biomechanics, at The Swedish School of Sport and Health Sciences (GIH), where I am also Dean of the Research and Doctoral Education Board. I was Secretary General of the ISB for seven years and on the Executive Council for the maximum term of six years and have also been Chairperson of the ISB Footwear Biomechanics Group.

The ISB needs to be part of the rapidly changing patterns of international mobility and people crossing borders, and use this as an asset for globally strengthening biomechanics research and education. I would love the possibility to apply my energy and enthusiasm to keep the ISB moving as an exciting, dynamic and truly international society.



**António Veloso, Portugal**

Dear Colleagues, presently I'm the Director of the Biomechanics Laboratory at the Faculty of Human Kinetics of the University of Lisbon, coordinating a fantastic team of 14 staff PhD members and 15 PhD Student and I'm also involved in different scientific structures both nationally as well as internationally but nothing made me more proud than to have served the ISB council for last 6 years. This experience showed me that ISB plays a crucial role in the development of Biomechanics, this has being accomplished mainly through the development programs for students and young researchers that I think should be expanded. I also know the challenges and constraints that ISB faces, especially some financial dependence of the organizers of the ISB conferences that I think the society should overcome and I will work on a more relevant role of the ISB council in the organization of the ISB congresses in the future. If elected I'm committed to strengthen the link between ISB and the members by providing more services, specially related to biomechanics education programs and increasing opportunities for young researchers exchange programs with more diverse travel and congress grants to expand the influence of ISB on the advancement of Biomechanics.

## **EDC Officer's Report**

By Ed Chadwick | March 2017

Dear ISB members,

In the previous edition of the ISB now we presented for you some of the advances concerning EDC projects. Unhappily, the number of EDC projects did not increase recently and part of this limited number of projects is the economical crises that reached many countries. However, when the difficulties increase is exactly the time to find more and more people willing to help those in limited conditions. And the good news is that many people want to help!

### **A big thanks to Julie!**

In this issue I would like to acknowledge the support of Prof. Julie Steele from University of Wollongong, Australia. Julie donated 9 boxes of journals to an emerging group of biomechanics in Cuba. Her donation will promote profound impact in the development of Biomechanics in Cuba. This is part of the work that ISB can do to develop biomechanics in developing Countries.





## How it happened?

Carlos Diaz Novo is a biomechanics researcher in the Centro de Biofísica Médica de la Universidad Pública de Oriente en Santiago de Cuba (Center of Medical Biophysics in the Public University of Orient in Santiago de Cuba). He sent me a message asking for help to develop their laboratory of biomechanics, established in 2005 in a hospital (Hospital General Dr. Juan Bruno Zayas Alfonso) and the first movement analysis laboratory in Cuba. Carlos describes the laboratory as dedicated to research on human movement dysfunctions originated from neurological impairments and use of prosthesis. He also mentions studies related to sports performance. The facilities are limited and they work with video cameras (Canon ZR95) and the Hu-m-an software.

### ANEXO 1



Figura 1. Conjunto, cámara-cabezal-lámpara



Figura 2. Cubo de calibración

Carlos wants to modernize the laboratory and contacted some companies. I have been helping him in this journey trying to find some company willing to support their laboratory and giving them a chance to leverage biomechanics research in Cuba.

If you want to join us in this journey, please let me know. Carlos and his group would be grateful. Contribution may include books and journals donation (like this donation sent by Julie Steele), instrumentation for biomechanics research related to the study of human movement and also mentoring collaboration to the development of research projects that will help them to develop the biomechanics in Cuba.

In addition to my contact, here is the contact of Carlos, who will be happy in giving us more information on what they need to develop biomechanics in their country:

Dr. Carlos Diaz Novo

Calle, Calixto García, No. 425, esquina Corona. Santiago de Cuba.

Cuba. Código 90100

Email [cdiazново@yahoo.es](mailto:cdiazново@yahoo.es), [celesteroque@medired.sld.cu](mailto:celesteroque@medired.sld.cu)

## **What is gong on in Chile?**

Chileans are working hard to develop biomechanics in their country. In the lasts months professor Kevin McQuade and the members of the Chilean Association have been working in the establishment of collaborative projects, which includes grants applications. Professor McQuade is within the Department of Rehabilitation Medicine from the University of Washington Seattle. He also develops projects in collaboration with Brazilian groups. He was able to visit the Chilean group and work with them for a couple of days. Activities include academic meetings, lectures in the university, seminars and also activities of science divulgation with kids.

Professor McQuade said that he went to Santiago to spend a week with Joel Alvarez and Mauricio Delgado. They came up with a project using MS Kinect as a marker-less functional assessment device. After he returned to US, he continues to consult on the kinect project and they are beginning to collect some data. He submitted an ISB abstract of this preliminary work to ISB congress this summer. He is now loking for addition funding to make possible keep a regular schedules of visits to the group in Santiago. The long term goal is to do everything the kinect can do but using a single smartphone camera.

Pictures below show a little bit about prof. McQuade visit.



# ISB Grant Reports

By Ed Chadwick | March 2017

## Research visit to learn ultrasound elastography method

András Hegyi, University of Jyväskylä, Finland

I am studying hamstring muscles as a Ph.D. student under the supervision of Prof. Neil Cronin and Prof. Taija Finni at the University of Jyväskylä, Finland. I recently visited Prof. Antoine Nordez and Prof.



François Hug at the Laboratory “Movement, Interactions, Performance”, University of Nantes (France) to learn ultrasound elastography method and apply it on hamstring muscles during muscle contractions. However, I happened to receive much more than I expected.

I spent around 2 months in this nice historical city. One month before my trip we had a meeting with Antoine Nordez and François Hug in Finland. My excitement started at this point, due to 2 reasons: first, they told me that no-one speaks English in Nantes, and second, that Nantes is a very rainy and dark city. After this point, I do not remember the rest of our talk, which was probably about my visit. But I was just thinking that if I get lost while going to the lab I cannot ask anyone where to go and cannot see the soaked map in the darkness either. Therefore, my first thing before I left my lovely English-speaking Finland was to pick up the most important French words from a dictionary to survive and to buy a super good raincoat.

On the day traveling there I was quite confident that I am well prepared. I slept one night in Paris on my way to Nantes. I rented a room there, and the first surprising thing was that the landlord spoke English pretty well! Before getting too happy he told me that Nantes is different, no-one speaks English there. But I learned the most important French words so no problem – I thought! Next surprise touched me when I arrived in Nantes: the sky was clear so it was a beautiful sunny day! It made me confident when I went to drink my first coffee in there. I ordered with my nice French knowledge. But they were just staring at me... Then I realized that they pronounce their romantic words completely differently than they write them! Well, in about 15 minutes I dived into the delicious flavor of their coffee and forgot about this incident for a while.

Although I could write much more about this lovely city (which had clear sky almost every day while I was there!), let me share some of my experiences in the lab, where I spent most of my days. I spent there a lot of time not only because everyone was speaking English in the lab but mainly because I could be part of an outstanding research team. Lilian Lacourpaille and Killian Bouillard post-docs helped me to learn ultrasound elastography method. We had many difficulties with recording reliably from hamstrings during contraction, which however forced me to dive deep inside to the methodology and gain a confident knowledge in using the method and interpreting the results. As an unexpected bonus, I also learned how to set up and use freehand 3-D ultrasound, another state-of-the-art method. To not get bored with studying human movements, I could also participate in a study where the validity of the ultrasound extended field of view imaging was tested on a delicious-looking meat, which was my first afterlife experiment. Even though everyone was very busy with his own things we had many meetings and discussions.

I experienced an outstanding hospitality in a great-working lab. Besides doing hard work in the lab I also had the opportunity to enjoy life outside the lab by visiting bars and eating delicious food in restaurants with these friendly researchers. This visit provided not only great opportunities for future research collaborations but established long-lasting friendships, hopefully. However, I still do not believe that Nantes is a rainy city, therefore, I will definitely go back to test it again!

Hereby, I would like to thank the International Society of Biomechanics for making my research visit possible, which was definitely one of my best experiences during my Ph.D. so far. I also thank Prof Antoine Nordez, François Hug and everyone in the lab for making my visit a great experience.

## **Visit to Nice to study high-performance training**

Scott R Brown

What a year it has been. For me, 2016 started out like many other years before; filled with an incredibly long list of things to do and no idea on where to start. As a doctoral candidate in my final year of study at Auckland University of Technology (AUT), I understood the importance of knuckling-down and finishing

my thesis. However, as a young researcher trying to make a name for myself, I also valued the importance of travel, conference presentation, collaboration and enjoying life. While perhaps difficult to imagine the cohabitation of these ideals, I was bound to make it happen.

Several years ago, while he was speaking at the Sports Performance Research Institute New Zealand (SPRINZ) Conference, I had the privilege of meeting Professor Jean-Benoît Morin from Université Côte d'Azur in Nice, France. Since our meeting, we have not only stayed in touch but have also worked on several manuscripts together (from afar). In the beginning of 2016, we discussed my involvement in a project occurring in Nice and whether I could fit it into my busy year. Of course my answer was yes and I frantically began searching for funding opportunities.

When I came across the *ISB Student International Travel Grant*, I knew it was meant to be. Not only was I an active member of ISB, but Professor Morin and my PhD supervisor Professor Patria Hume were as well. A research proposal and a few letters of recommendation later and I was in! The grant funding helped me to afford the hefty costs of flying from Auckland, NZL to Nice, FRA, accommodation for four weeks and other necessities like food and transportation. More importantly, the grant helped me live the life that I wanted to live by traveling, collaborating and experiencing such a wonderful part of the world.

While in Nice, Professor Morin and I worked alongside Dr Pedro Jiménez-Reyes from Universidad Católica San Antonio de Murcia, Murcia, ESP on a project in sprinting. We spent several days Skyping with our collaborative team at Université Savoie Mont Blanc, Chambéry, FRA (Dr Pierre Samozino and Mr Matt Cross) and Glasgow Warriors, Scotstoun Stadium, Glasgow, GBR (George Petrakos) to ensure we had presented a clear and impactful message in our manuscript. Before my time was up in Nice we were able to submit our project titled, "Very-heavy sled training for improving horizontal force output in soccer players" to the *International Journal of Sports Physiology and Performance*.

Now, six months after my trip I am re-examining the most important aspects of my trip to Nice. Our manuscript has been accepted, is currently in press and I had successfully defended my PhD. While these are all great achievements academically, I find that I hold more valuable the discussions had with Professor Morin about life as a husband, father, teacher, researcher and athlete; and how anyone can be great at all of them simultaneously if you prioritise wisely. I cherish my memories enjoying the French cheese and beer with this amazing group of individuals (including a surprise visit by Dr Yann Le Meur from AS Monaco Football Club, Monaco, FRA), their supportive families and my lovely fiancé Erin during the warm summer on the French Riviera. I live differently today (academically and personally) because of my experiences travelling to Nice last year. I know that I have the council members for the *ISB Student International Travel Grant* and my collaborative European team to thank for this wonderful experience. Merci, gracias, kia ora and thank you!

## **Matching Dissertation Grant funded work into total knee replacement**

Kevin Valenzuela

In February 2016, I received the email of my receiving the ISB Matching Dissertation grant. I immediately put this money to work as my dissertation research had also just cleared the IRB protocol at my university. The bulk of the money in the grant went to subject recruitment. My research involves the investigation of biomechanical, strength, balance, and functional factors related to total knee replacement patients and their satisfaction levels with their replaced joint. The overall goal was to look for identifiable physical characteristics which contribute to patient dissatisfaction. In order to examine this, we chose to assess 3D kinematics and kinetics for over ground walking, stair ascent, and stair descent. Additionally, we tested isokinetic knee flexion and extension strength, bilateral and unilateral balance abilities, and some functional tests frequently used in the rehabilitation process for total knee replacement patients.

As of the date of this report, we have finished collecting and processing data and are currently writing up four different manuscripts. We spent approximately 10 months sorting through records of a local orthopaedic surgeon, identifying patients who fit our criteria, opening the lines of communication, and finally performing our data collections on them. Each participant visited our lab on two different days to perform all of our tests. During that 10 months, plus an additional two, we processed and analyzed all of our data, while compiling two abstracts in the process for conference presentation (one of which is the ISB conference).

We have examined a variety of variables we believe are related to patient dissatisfaction, which will be evident in the four manuscripts being written. The first is on the strength, balance, and deep knee flexion abilities of our three participant groups (dissatisfied knee replacement patients, satisfied knee replacement patients, and a healthy control group). The second is on the overground walking movement profile of the dissatisfied patient group as compared to the other two groups. The third is on the stair ascent and descent movement profile. Finally, the fourth, which is the exciting part of this entire project, is to perform a logistic regression on the data collected in order to find the variables which best predict patient satisfaction.

This project has been an adventure and a huge learning process. From myself and those who have helped along the way, we want to sincerely thank ISB for their support of this project. The monetary support provided and the faith placed in this project has been incredibly rewarding and helpful. To know that it has the backing of an international institution in our field has provided a tremendous amount of moral support during the tough parts of the project. Thank you very much for all the support.

## **ISB Fellows - call for nominations**

By Ed Chadwick | March 2017

Dear ISB members,

In 2015, the ISB executive established a Fellows category and selected 10 inaugural Fellows of the Society at its last congress in Glasgow.

We currently seek nominations (they can be self-nominated or through one of the ISB Fellows) for ISB Fellows for 2017.

Below you see the Fellow nomination criteria. Note that these criteria are the minimal criteria, while we are looking for nominations of outstanding scientists, with a long career in biomechanics and significant contributions to the ISB and the field.

If you know such an outstanding person that you think should be nominated, please send the name of that person, plus all contact information to me at the following email address by Thursday, 13th

April: [walter@kin.ucalgary.ca](mailto:walter@kin.ucalgary.ca)

Thank you,

*Walter Herzog*

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In 2013, the ISB Council agreed to establish a Fellowship of the International Society of Biomechanics (FISB). The purpose of awarding Fellowships of the ISB is to recognize distinguished professional achievement in biomechanics. Fellows of the ISB are encouraged to provide continued professional service and leadership to the Society, particularly to foster the activities of Early Career Researchers within the Society.

## **FELLOWSHIP REQUIREMENTS**

Fellowship will be awarded to members of the International Society of Biomechanics (ISB) who, as of 1 January in an ISB Congress year, have fulfilled the requirements for Fellowship. The minimum requirements for an application to be reviewed are listed below.

- Full membership in good standing of the ISB for at least 10 consecutive years, at the time of nomination, and for the duration of the Fellowship.
- Attended at least 3 of the 5 preceding ISB Congresses
- Published at least 20 manuscripts relating to biomechanics in international peer-reviewed journals of high repute
- Presented (or was a senior author of) at least one paper or poster at an ISB Congress within 3 years of application
- Demonstrated high standards of service to the ISB by being an active:
  - member of the ISB Council,
  - member of an ISB working party,
  - member of the organizing committee for an ISB Congress, or
  - member of a scientific committee for an ISB Congress
- Evidence of having advanced the biomechanics profession in definitive ways (e.g. awards; attainment of research grants; publishing book chapters etc.)
- Be endorsed by two ISB Fellows or ISB Council members, who will confirm in writing the applicant's high level of competence and ethical conduct within the discipline of biomechanics.

## **FIRST ROUND OF FELLOWSHIP**

For the first round of Fellows, the ISB President, John Challis, appointed Past-President, Professor Julie Steele, as Censor of the Fellows. The Censor, together with the current ISB President, drafted a list of recommended candidates for the first round of ISB Fellows. This list of recommended candidates was presented to the ISB Executive Council at their pre-Congress meeting in Glasgow in 2015. The Fellowships, which were approved by two-thirds vote of the ISB Executive Council, were then awarded at the General Assembly held during ISB2015.

## **NOMINATION PROCEDURE**

During each ISB Congress, the Fellows designate two Assessors of the Fellows, in charge of drafting a list of potential candidates (fulfilling the requirements above) for the next class of ISB Fellows. Candidate fellows can be nominated by a Fellow or can submit their application (a call will be issued in the Winter of Congress years). The list of potential candidates is submitted for discussion among the Fellows during

Spring of Congress years. The Fellows establish the list of recommended candidates based on a majority vote by the Fellows.

The list of recommended candidates is submitted to the Executive Council of the ISB for their pre-Congress meeting. The Fellowships are awarded upon vote by two-thirds of the ISB Executive Council, and are then awarded at the General Assembly held during the Congress of the ISB.

## ACTIVITIES OF THE ISB FELLOWS

ISB Fellows contribute to the service and leadership of the ISB by providing active support to various activities organized by ISB Officers, Affiliate Societies, or Technical Groups. Since their specific mission is related to the activities of Early Career Researchers within the Society, they participate actively in the Mentoring Program, as mentors, but also as intermediates between mentees and mentors.

During each Congress of the ISB, Fellows organize a specific event for early stage researchers.

## LIST OF ISB FELLOWS

2015 Class of Fellows

**Maarten Bobbert**

VU University Amsterdam, The Netherlands

**Ton van den Bogert**

Cleveland State University, USA

**Brian Davis,**

University of Akron, USA

**Veronique Feipel**

Université Libre de Bruxelles, Belgium

**Walter Herzog**

University of Calgary, Canada

**Jill McNitt-Gray**

University of Southern California, USA

**Peter Milburn**

Griffith University, Australia

**Mary Rodgers**

University of Maryland, USA

**Darren Stefanyshyn**

University of Calgary, Canada

**Ron Zernicke**

University of Michigan, USA

## Students' Corner

By Ed Chadwick | March 2017

Firstly, it is my pleasure to announce our short-listed candidates for 2017-19 Student Representative - Kevin Boldt and Melissa Boswell. Kevin and Melissa's biographies [can be seen here](#), and voting will commence shortly. Good luck to both candidates!

I am looking forward to meeting many of you in Brisbane this July for ISB2017! Don't forget that the early-bird registration period ends on April 7<sup>th</sup>. Click [here](#) to register now!

Planning for the student excursion is well underway (more details to follow shortly), and I am excited to announce that we will be running a mentor-matching system which you can sign up for at the time of registration. This is a unique opportunity to be paired with a senior delegate with whom you will organize a one-on-one meeting at some stage during the conference.

I would like to encourage you to discuss accommodation sharing opportunities via our [Student Members](#)

[Facebook Group](#). If you do not use Facebook, please feel free to contact me and I will do my best to connect you to other students who are also looking to share accommodation.

Finally, if you are seeking additional funding to support your trip to Brisbane, you might consider applying for a [Delsys Student Travel Grant](#) or a [Force & Motion Foundation Quarterly Academic Travel Scholarship](#).

## **Advice to Students**

It's time for our seventh instalment of the Advice to Students project...

In this clip, we hear from Prof. Maarten Bobbert of VU University Amsterdam who discusses hypothesis-driven research. I hope you enjoy the video and, once again, a big thank you to Dr. Bobbert, and our team of contributors, for generously volunteering to impart some wisdom!

## **International Travel Grant**

A reminder that applications for the [International Travel Grant](#) (ITG) program are due on May 30, 2017. The ITG provides financial support of up to \$US2500 for travel related to biomechanics research. The primary goal of the ITG is to create opportunities for students to travel abroad to experience science in other countries and cultures, and to build up international collaborations. If you have any questions, please feel free to reach out.

## **Social Media**

Stay in the loop - visit the [ISB Facebook page](#), join our [Student Members Facebook Group](#) and follow us on [Twitter](#) for ISB related updates.

As always, I'd love to hear any feedback or suggestions you may have and am always happy to answer your questions, so please feel free to get in touch.

Finally, don't forget to vote for your new student representative! Biographies can be found elsewhere in this issue.

Kind regards,

Kirsty McDonald

isb.studentrepresentative@gmail.com

# Executive Council Elections 2017

By Ed Chadwick | March 2017

Every two years ISB members elect a new Executive Council, and President-Elect. The Executive Council members are elected for a 2-year term, with a maximum of three terms, and represent countries from throughout the world and various scientific areas within biomechanics. The Executive Council meets every year and provides leadership for the continued development of the Society and oversees the many on-going activities that are performed by Council appointed sub-committees, including activities in Economically Developing Countries, student grants, and student awards. The President-Elect is responsible for coordinating the proposals for the 2021 ISB Congress and will become President in 2019.

Candidates for President-Elect for the 2017-2019 term are, in alphabetical order,

- Toni Arndt, Sweden
- António Veloso, Portugal

Candidates for Executive Council Member for the 2017-2019 term are, once again in alphabetical order,

- Daniel Benoit, Canada
- Thor Besier, New Zealand
- Felipe P Carpes, Brazil
- Elizabeth Clarke, Australia
- Catherine Disselhorst-Klug, Germany
- Zac Domire, USA
- Taija Finni, Finland
- Mark King, England
- Alberto Leardini, Italy
- Li Li, USA
- Glen Lichtwark, Australia
- Yu Liu, China
- Rajani Mullerpatan, India
- Dieter Rosenbaum, Germany

This issue of ISB NOW contains a brief profile of each of the candidates for [President-Elect](#), [Council Members](#) and [Student Representatives](#). The online voting procedure will be conducted during April.

Members will receive email notification that voting has started, together with detailed instructions related to the voting process. You will be asked to vote for one President-Elect, ten Executive Council Members, and one student representative.

**Please vote! We want to make sure that the ISB Council represents the interests of all members.**

# 2017 Muybridge Award Winner: Walter Herzog

By Ed Chadwick | March 2017



The Muybridge Award is presented at each congress to an individual for their “*career achievements in biomechanics*”, it is our society’s most prestigious award. The award is named after Eadweard Muybridge (1830-1904), who was one of the forefathers of modern biomechanics with his recordings of various aspects of animal movement. A committee reviewed the nominees for the 2017 award, and the selection was Dr. Walter Herzog for his outstanding contributions to biomechanics research, the development of biomechanics worldwide, and contributions to the ISB. At the 2017 Congress Walter will be presented with the Muybridge Medal, and deliver the accompanying lecture.

Dr. Walter Herzog did his undergraduate training in Physical Education at the Federal Technical Institute in Zurich, Switzerland (1979). In 1979 he moved to the US to study with Jim Hay, completed his doctoral research in biomechanics at the University of Iowa (USA) in 1985. He completed postdoctoral fellowships in Neuroscience and Biomechanics at the University of Calgary (Canada) in 1987. Currently, Walter is a Professor of Biomechanics at the University of Calgary with appointments in Kinesiology, Medicine, Engineering, and Veterinary Medicine. He holds the Canada Research Chair for Cellular and Molecular Biomechanics, and is appointed to the Killam Memorial Chair for Inter-Disciplinary Research at the University of Calgary.

His research interests are in musculoskeletal biomechanics with emphasis on mechanisms of muscle contraction, and the biomechanics of joints with focus on mechanisms of onset and progression of osteoarthritis. Within these areas, his work is carried out experimentally and theoretically at the molecular/cellular levels using *in vitro*, *in situ*, and *in vivo* preparations. Walter has published four books, with one in its third edition, and over 500 papers. In recognition of his research Walter has been the recipient of many awards including the Borelli Award from the American Society of Biomechanics and the Career Award from the Canadian Society for Biomechanics. He is the past president of the American and Canadian Societies for Biomechanics, and was recently inducted into the Royal Society of Canada.

From 2007 to 2008 Walter served as the President of the ISB. In 2015 he was appointed a fellow of the ISB. He was a co-organizer of the 1999 ISB Congress hosted in Calgary, and he is the co-organizer of the 2019 Congress also to be hosted in Calgary.

We congratulate Walter on winning the 2017 Muybridge Award and look forward to his Muybridge Award lecture during the 2017 Congress in Brisbane.



# President's Blog, March 2017

By Ed Chadwick | March 2017

In 2014, Australia's then Prime Minister, the Hon. Tony Abbott, was quoted as saying:

"There needs to be a significant emphasis in boosting our focus on Science, Technology, Engineering and Maths (STEM) because science is at the heart of a country's competitiveness and it is important that we do not neglect science as we look at the general educational and training schemes".

Today STEM is almost every country's preoccupation and is shaping global economic plans. In other words, economic plans are designed to support the focus on STEM, rather than limit it.

For example it is estimated that scientific and technological advances have produced roughly half of all the US's economic growth over the last 50 years.

An education in STEM also fosters a range of generic and quantitative skills and ways of thinking that enable individuals to see, solve and grasp opportunities. These capabilities — including deep knowledge of a subject, creativity, problem solving, critical thinking and communication skills — are relevant to an increasingly wide range of occupations and will be part of the foundation of adaptive and nimble institutes and workplaces of the future.

So, why am I talking about STEM; because biomechanics encompasses everything that STEM is about. Biomechanists around the world have taken up the mantle to promote biomechanics in our schools as a way of showing that Science is fun. None more so than Professor Paul DeVita who founded USA's National Biomechanics Day in 2016 and managed to engage more than 2000 students and teachers to participate in biomechanics activities in their schools. Paul is currently taking 'Biomechanics Day' worldwide and already nine countries have committed to celebrating the day.

Make sure you follow and support National Biomechanics Day on April 6th this year.

It also gives me pleasure to inform you that the ISB2017 Congress is progressing well with over 1200 abstracts received from around the globe. Abstracts have now been reviewed and delegates notified of their acceptance. Please make sure you visit the ISB2017 website to take advantage of the early-bird registration and check that your ISB membership is current so you can take advantage of a further discount. All of the keynote speakers are confirmed and the pre-congress tutorials have something for everyone.

I am delighted to say that ISB2017 is being held in conjunction with the Asian Pacific Association of Biomechanics (APAB) and the Australian and New Zealand Society of Biomechanics (ANZSB) and will also include one and a half day concurrent sessions by two ISB Working Groups; Hand and Wrist Biomechanics International and the Motor Control Group. APAB and the Working Groups have guaranteed an excellent line-up of speakers. Satellite symposia by the Footwear Biomechanics Group and the Technical Group on Computer Simulation are also planned to take place prior to the conference on Queensland's iconic Gold Coast, which is only one hour south of Brisbane. Both of these meetings conclude on the 22nd of July, which gives delegates plenty of time to travel to Brisbane to take part in the ISB Tutorials, which are scheduled for the morning and afternoon of the 23rd of July.

In closing I would like to encourage you all to join us in Brisbane for the XXVI Congress of the International Society of Biomechanics. Your participation in the congress will go a long way toward maintaining the sustainability of our society and its future congresses.

*Andrew*

