International Society of Biomechanics Newsletter

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AFFILIATE SOCIETIES OF ISB:
American Society of Biomechanics; Australian and New Zealand Society of Biomechanics; Brazilian Society of Biomechanics, British Association of Sport and Exercise Sciences; Bulgarian Society of Biomechanics; Canadian Society of Biomechanics/Société canadienne de biomécanique; Chinese Society of Sports Biomechanics; Comisia de Biomecanica Inginerie si Informatica (Romania); Czech Society of Biomechanics; International Society of Biomechanics in Sports, Japanese Society of Biomechanics; Korean Society of Sport Biomechanics; Polish Society of Biomechanics; Russian Society of Biomechanics; Société de biomécanique (France), Taiwanese Society of Biomechanics.

ISB President's note

Up until yesterday, I had it all figured out. I wanted to write about efforts of globalizing the biomechanics community in general, and ISB specifically by building capacity in countries with strong interest but little infrastructure, and by encouraging scientists from Asia, South America, Africa and Eastern Europe to get involved with the ISB through scientific or political leadership. This issue of the newsletter would have been ideal as candidates for the executive council are introduced and are looking for your vote. Considerations on having a broader global representation might have influenced the way the membership would have voted.

I could have said that maybe we should consider some of the candidates from ill represented areas of this world so as to balance the strong representation from Europe and North America on the executive council. There is nothing in the constitution requiring such a balance, but maybe it would have been good to vote with such considerations in mind.

However, I am not going to say any of that, because of yesterday's appointment of Prof. Steve Chu as energy secretary to the Obama government in the United States. Dr. Chu, of course is the 1997 Nobel Prize winner in physics for his work on trapping atoms with lasers. Those of you attending the World Congress of Biomechanics in Calgary in 2002 might remember him as one of the plenary speakers discussing the applications of laser trapping for the mechanical testing of biological structures. Dr. Chu was particularly fascinated about unfolding events in DNA. His then colleagues at Stanford took laser trapping to another level by holding on to really big things, such as entire molecules and to me, one of the most fascinating papers ever to come out on muscle contraction mechanisms was the first laser trapping experiments exploring the nanometer steps and piconewton forces of a single cross-bridge interacting with an isolated (and laser trapped) actin myofilament by the Spudich group from Stanford University (Finer et al., 1994; Nature 368:113-119).

But although the science is fascinating, I am diverging, because the politics are even more interesting than the science. So what does a Nobel laureate do as the energy secretary, and why would the appointment of one of the giants of science to an important position in politics be so interesting. Well, first and foremost, Mr. Obama might have given a defining sign that in the fight against global warming, and the search for alternative energies and resources, a scientist would be leading the charge. What a change from previous administrations who denied the idea of human-induced global warming for so long.

But with this change comes responsibility, which brings me to the question I wanted to explore: what is the political role and what is the social responsibility of academic scientists. One of the obvious answers is that we are privileged to train the cleverest of all students and that we form and influence the thinking, scientific and otherwise, of new generations of leaders. This is a great responsibility that we must take seriously. However, the educational role of academics, although often not emphasized enough, is essentially taken for granted and relatively undisputed. It is a good thing.

But what about our scientific responsibilities? Many years ago, when I was a student in an academically conservative environment, it was quite clear that academic science was a curiosity driven affair with individuals plodding away in their laboratories in relative isolation. Funding was largely provided by federal government sources with no restrictions attached. Nobody would have expected in those days publications in which the list of authors amounted to an entire printed page, as for example in the human genome project. Nobody would have expected millions of dollars of research funding from private industry or donors with specific interests. What does such funding do to our academic independence and to our curiosity driven research? Can we remain objective? CBC Radio Calgary reported this morning that a major donation was made to our University by a local oil and gas company for a research chair. The person occupying the chair was selected by the industrial partner, and that person is directly involved in an expert panel investigating environmental impacts of certain procedures by that same industrial partner. The designated academic chair and the industrial partner sharply decried the idea that this might be the source for a conflict of interest, that academic researchers are

above bias, and just because a person's salary and operating money is paid for by an interested party, does not affect this person's view of the research to be conducted or the interpretation of the results. This might very well be true, but may that be as it is, the perception created by such an arrangement is wrong. I, for one, would not want to have my salary and scientific livelihood paid for by a company who I represent on an expert panel investigating environmental impacts and conduct independent and impartial investigations as an academic researcher. Or would you want to be the researcher who is reporting negative results for the third year in a row to an interested party who pays millions for your research and is the source of your income? What responsibility do we have as academic scientists, and are we strong enough as individuals and as Universities to remain objective and neutral when much of our funding comes from interested parties. Have we become a scientific resource for hire?

Steve Chu, of course, pulled off one of the biggest University-business partnerships when obtaining $ 500 million from British Petroleum (BP) to set up the Energy Biosciences Institute at the University of California in Berkeley. Needless to say that this "collaboration" came with a prize tag, giving BP half of the eight seats on the institute's governing board, 30% of the money was earmarked for proprietary research to be conducted behind closed door by BP scientists, BP retained royalty-free license to any public research discovery and BP retained the right to negotiate exclusive licenses with royalties capped at $100,000 per year. Where does academic freedom become an empty phrase and how do we ensure independence in the face of contracts of this sort between interested business partners and Universities. Of course, we could argue that such deals will never happen in an area like biomechanics, but industrial partnerships in the millions of $'s are not uncommon at our University in the biomedical engineering area and all biomechanists at the University of Calgary are part of the biomedical engineering program.

We all need to find our own balance, and at the end of the day, need to decide who we want to be and what we want to achieve. I believe in the scientific independence of academic institutions and the independence of University research and scientists. However, I do realize that this is not the view of many of my colleagues and given a $500 million grant, idealism might be tested to its extreme. I believe that it is essential to have a place of independent research, unaffected by government policy and private business interest. This place used to be the University, but increasingly it might not be anymore. It is up to us to decide where Universities are headed, and I will watch with interest and great curiosity, but nothing will be greater than my curiosity in Steve Chu's political attempts at freeing the US from fossil fuel based energy sources. As always, science is politics and with the problem of climate change and the endless possibilities opened up with the description of the human genome, 21st century scientists will face questions of ethics and integrity that few seem prepared to ponder. Let's make sure that as scientists and the world leading society of our peers, we are prepared for the changing demands of academic scientific research.

Walter Herzog

(©Bart Nagel Photography

Now, since we all know what our president Walter looks like, here is a picture of Steven Chu in his laboratory.

ISB Council election 2009-2011

Very soon you will be advised by e-mail of the commencement of on-line voting for the 2009-2011 ISB Council. Below are the names and biosketches of those standing for the various positions (NB: these will also be viewable while you vote on-line). – *Brian Davis, ISB Past-President*

Presidential candidates

Ton van den Bogert, PhD (USA)

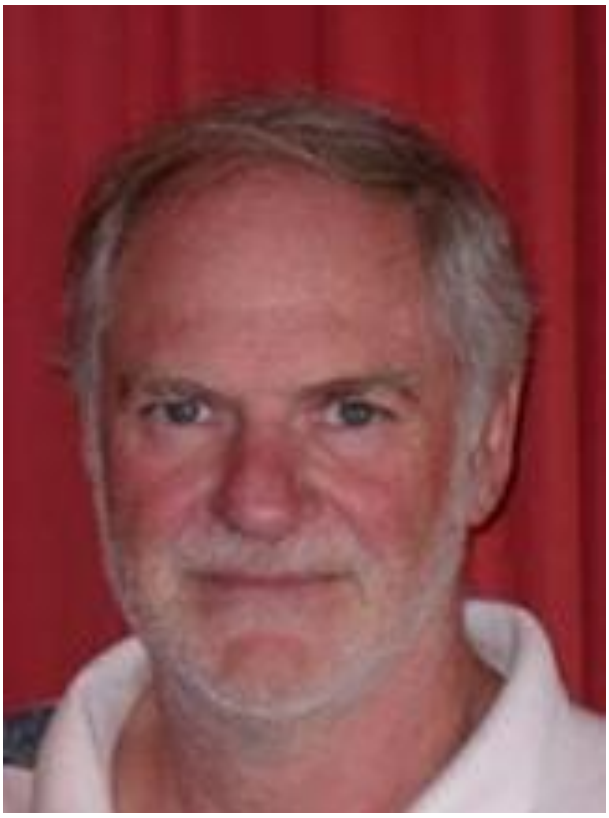
Ton van den Bogert is currently Associate Staff in the Lerner Research Institute of the Cleveland Clinic and Associate Professor in the School of Engineering and School of Medicine of Case Western Reserve University, in Cleveland, Ohio. He obtained his PhD degree from the University of Utrecht (Netherlands) in 1989 and was a faculty member at the University of Calgary (Canada) before moving to the USA in 1998.

In 1996 Ton started working with Motion Analysis Corp. on new algorithms to solve skeleton movement from marker trajectories. This technology was used in projects such as *King Kong* and *Lord of the Rings* to generate realistic movements for animated characters. This work was recognized by a Technical Achievement Award from the Academy of Motion Picture Arts and Sciences in 2005.

His research program focuses on innovative methods in computational biomechanics for analysis and simulation of human and animal movement, with recent applications in sports injury prevention, optimal control of movement, and design of neural and mechanical prostheses. In 1988 he co-founded the Biomch-L discussion forum and the ISB Technical Group on Computer Simulation. He has served the ISB as executive council member (1995-2001) and co-chaired the ISB Congress in Cleveland in 2005. Ton has authored more than 80 journal articles, which have been cited 1800 times in total. He and his students have received conference awards from the ISB, ASB, AOSSM, and ORS.

He says: "I joined the ISB in 1987 as a graduate student because it was tremendously exciting to become part of this international and interdisciplinary community. My primary goal in serving the ISB is to help create optimal conditions for the community to thrive, through conferences, technical groups, student programs, and open information exchange. This must be supported by a modern internet-based infrastructure that encourages communication and active participation by members."

Joseph Hamill, PhD (USA)



Joseph Hamill is a Professor in the Department of Kinesiology at the University of Massachusetts and has been the director of the Biomechanics Laboratory for the past 23 years. Previously, he has served as Chair of the department for 11 years and as Associate Dean of the School of Public Health and Health Sciences for three years. He has appointments as an Honorary Professor at the University of Edinburgh in Scotland and as a Distinguished Research Professor at public Polytechnic in Singapore. Dr. Hamill received a B.A. from York University, Toronto, a B.S. from Concordia University, Montreal, and both an M.S. and Ph.D. in biomechanics from the University of Oregon.

His research interests are focused on lower extremity mechanics during normal and pathological locomotion with a particular emphasis on mechanisms of overuse injuries. He has authored or co-authored over 100 research papers, over 160 research proceedings, several book chapters and three books. He has also presented over 150 papers at both national and international conferences. Dr. Hamill is a member of numerous organizations including the American, Canadian, and International Societies of Biomechanics and the American College of Sports Medicine.

He is a Fellow of ACSM, of the Research Consortium, of the Canadian Society of Biomechanics, of the International Society of Biomechanics in Sports and of the Academy of Kinesiology. He is a member of several editorial boards of professional journals and reviews for all major professional biomechanics journals. He has been an invited speaker in many countries around the world.

During his academic career, Dr. Hamill has mentored more than 20 doctoral students and 30 MS students. He has served on the Executive Boards of the New England Chapter of the American College of Sports Medicine, the International Society of Biomechanics, the Footwear Biomechanics Group, the International Society of Biomechanics in Sports and the Canadian Society of Biomechanics.

He says:

"I have been an active ISB member since 1981. I was first elected to the ISB Board of the International Society of Biomechanics in 2003 and have served on the Board for three terms (six years). During that time, I have been responsible for the Informatics portfolio. A major responsibility of this portfolio is to mange the ISB web site. The new web site has been up and running since 2005 and we continually work to update the site.

If elected, my main goal would be to continue the work of ISB Past-President Brian Davis and current President Walter Herzog in expanding the membership of ISB. Our current membership is significantly lacking in researchers from Africa, South America and Southeast Asia. To be a truly international organization, we must step up our recruiting activities in these areas. We must also foster international research collaborations between those established ISB members and those in developing countries.

The International Society of Biomechanics should play a leading role in shaping the scientific landscape of the future. As President-Elect and President of the Society, I want to direct and lead the ISB into all areas of biomechanics research. Specifically, I want to facilitate closer relationships with the other academic communities who might play crucial roles in our future scientific activities. To this end, I would attempt to create expanded opportunities for students and researchers via our grant programs and also provide support for our existing areas of research strengths."

Council candidates

Shinji Sakurai, Ph.D. (Japan)

Shinji Sakurai completed the Bachelor of Physical Education and Master of Science (Biomechanics) degrees at the University of Tokyo (1974 – 1981), and earned his Ph.D. from the University of Tokyo in 1994 (mentor: Professor Mitsumasa Miyashita). He initially was appointed to Nagoya University (1981 – 2001) before moving to the School of Health and Sport Sciences at Chukyo University as a Professor of Biomechanics.

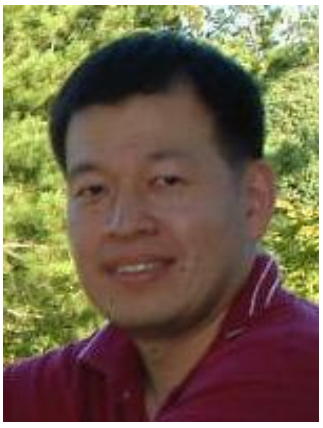
He has extensive international experience, having lectured at International Conferences (ISB and ISBS) and has spent several years at the University of Western Australia as a visiting scholar. His research interests are primarily in sport biomechanics with foci on the biomechanics of throwing, hitting, and running. He is also interested in the effects of training, growth, and aging on human movement.

He is currently a chief editor of the Japanese Journal of Biomechanics in Sports and Exercise and serves on the editorial review board on Clinical Biomechanics. He is extremely interested in serving on the Executive council of the ISB.

Darren Stefanyshyn, Ph.D. (Canada)

Darren Stefanyshyn received his PhD in 1996 from the University of Calgary and is currently an Associate Professor at the Human Performance Laboratory at the University of Calgary. His research focus is in the area of sport and locomotion biomechanics with a special interest in sport equipment such as footwear. He has been an ISB member since 1996. Darren has been a regular participant at ISB conferences, attending his first ISB meeting in 1993 in Paris as a student and serving as Secretary General of the organizing committee of the 1999 ISB conference in Calgary. He has been intimately involved in the Footwear Biomechanics Technical Group of the ISB, as Chair of the 1999 Footwear Symposium in Canmore, serving as an Executive Board Member for four years and he is currently the Chairperson of the group.

Tzyy-Yuang Shiang, Ph.D. (Taiwan)



Tzyy-Yuang Shiang received his Ph.D. degree from Pennsylvania State University in Mechanical Engineering (majoring in Biomechanics) in 1993. His research interests are mainly dedicated to various aspects of Sports biomechanics, Biomedical engineering and Sports equipment design. He has been a research scientist and faculty member in the sports biomechanics field in Taiwan since 1995. He presently serves on the faculty of the Graduate Institute of Exercise & Sports Science and is the president of the Taiwanese Society of Biomechanics. He joined the ISB as an active member in 1997 when the ISB conference was held in Asia (Tokyo) for the first time. He also served as chair for the ISB 2007 conference in Taipei. He was first elected to the ISB Board in 2007 and current serving on the Board of ISB. An ISB council member in South Asia will be helpful to attract more researchers from this area in joining the ISB and connect to more "growth" groups within clinics and colleges in the field of biomechanics

Veronique Feipel, Ph.D. (Belgium)

Veronique Feipel obtained a Ph.D. in Physical Therapy in 1997 from the University of Brussels (ULB), Belgium. She is currently Associate Professor of Anatomy and Research Methodology at the Institute for Motor Sciences and Institute of Pharmacy (ULB).

Her research interests include spine, wrist and knee kinematics and anatomy, functional evaluation of the spine, kinematic applications of 3D computed tomography and gait analysis. She has been serving the ISB as executive council member since 2007 and is a member of the team that has been appointed to organize the ISB Congress in Brussels in 2011.

She says:

"Biomechanics is among the disciplines that request and allow collaboration between researchers from a large variety of disciplines. This transdisciplinary character offers a platform for enriching exchanges between individuals with different backgrounds. It also implies that we are to provide the next generations of biomechanics researchers with a knowledge that crosses the borders of the individual disciplines. Serving the ISB is for me the opportunity to act as facilitator in the view of crossing frontiers between disciplines and countries, in order to help biomechanists from all backgrounds and from all over the world to feel part of this very rich and diverse ISB community."

Dr. Stefan Grau, Ph.D. (Germany)

Stefan Grau is currently Associate Staff at the Department of Sports Medicine at the University Clinic in Tübingen, Germany. He has been the head of the Biomechanics Laboratory, with 10 senior researchers and 5-10 doctoral students/year, since 2002. After his Bachelor and Master Studies (Sport Science, Biomechanics and Human Anatomy) at the University of Tübingen, Tübingen, Germany and at the University of Oregon, Eugene, USA, he obtained his Ph.D. at the University of Tübingen in 2001. His research focus is on lower extremity mechanics, clinical and training issues and their combined patterns in normal and pathological locomotion, especially with regard to overuse injuries in runners. Further research interests are the development of functional running shoes, safety shoes and children's shoes, as well as the development of new measurement methods and evaluation software. His current research focus is on the evaluation and treatment of Parkinson's disease and childhood obesity. Within the scope of patient care, he carries out biomechanical and training-specific analyses on athletes with the aim of recognizing the biomechanical causes of overuse injuries and eliminating them through selected treatments. He has authored and co-authored several research papers in the last years and presented many papers at international and national conferences. He is also a reviewer for several peer reviewed clinical and biomechanical journals.

He says: "I joined the ISB in 2002. If elected as an executive board member, I would like to focus on supporting students and younger researchers to become active members of the society. I also think it is important to expand the international membership of the ISB by implementing and supporting specific programs for students and researchers in emerging (e.g. Eastern Europe) and developing countries."

John H. Challis, Ph.D. (USA)

John obtained both his B.Sc. (Honors) and Ph.D. from Loughborough University of Technology. From Loughborough he moved to the University of Birmingham (UK), where he was a lecturer (human biomechanics).In 1996 he moved to the Pennsylvania State University, where he currently conducts his research in the Biomechanics Laboratory. His research focuses on the coordination and function of the musculo-skeletal system, and the data collection and handling methods required to investigate these. His collaborators include people working in anthropology, engineering, medicine, and motor control. To date he has supervised 19 graduate students. He has regularly attended ISB congresses since 1987, and became a member in 1991. Since 2001 he has been in charge of the ISB archives, which are housed at Penn State. He was first elected onto the ISB Executive Council in 2005.

He says: "My objectives as an ISB Executive Council member would be to continue my duties as the archivist of the ISB. A particular new focus would be to make more information arising from ISB activities, for example past conference proceedings, easily available to all members via the society's web page."

Toni Arndt, Ph.D. (Sweden)

Gaining international experience during his studies, Toni Arndt initially completed a BSc (Biology) at the University of Auckland, New Zealand; a MSc (Human Movement Science) at the University of Wollongong, Australia; followed by a PhD (Biomechanics), German Sport University, Germany. He is currently an Associate Professor in Biomechanics and Director of Studies of the Podiatry Program, at the Karolinska Institute, Stockholm, Sweden.

Toni's research interests include 3D kinematics of individual bone segments in the foot, mechanical loading and strain in the Achilles tendon, muscle physiology related to Achilles tendon mechanics, tendon rehabilitation, footwear biomechanics, and prosthesis biomechanics.

He has been a member of ISB since 1992 and with strong involvement in the ISB Footwear Biomechanics Group, being a member of their Executive Council since 2005.

Geneviève Dumas, Ph.D. (Canada)

Geneviève Dumas, PhD, P.Eng. is a Professor in the Department of Mechanical and Materials Engineering at Queen's University, Kingston (Ontario), and cross-appointed in the School of Kinesiology and Health Studies. She received her PhD from Ecole Polytechnique (Montreal) in 1981 and joined Queen's University in 1985. Her research expertise is in Spinal Biomechanics, and she also has a strong interest in Biomechanics of Pregnancy. She served on the Executive of the Canadian Society of Biomechanics (CSB) as Newsletter Editor for four years, and has just started as one of the co-chairs for the 2010 CSB meeting.

She says: "One of my interests in serving for ISB is to promote the involvement of researchers and students from parts of the world (e.g. Africa, South America, South Asia) that are currently not well represented in ISB and to further facilitate international collaborative research.

Andrew Cresswell, Ph.D. (Australia)

Andrew Cresswell, Med dr (Karolinska) is a Professor at The University of Queensland where he has joint appointment in the School of Human Movement Studies and Division of Physiotherapy and is head of the Neuromechanics Laboratory. He obtained his Bachelors degree from The University of Ballarat, Australia (1997), his Masters degree from the University of Western Australia, and his Medical Doctorate in Neuroscience (1994) and Docent in Human Neurophysiology (2000) both from the Karolinska Institute in Sweden. He has previously held teaching and research positions at The University of Otago, The Karolinska Institute and The Swedish School of Sport and Health Sciences.
His research is directed toward understanding how the human brain controls movement using biomechanical and neurophysiology techniques. His particular research interests lie within the areas of the neural control of eccentric and concentic muscle actions, neural aspects of muscle fatigue as well as reflexive and voluntary activation of the abdominal musculature during postural tasks. He has co-authored more than 60 peer reviewed publications in leading scientific journals in biomechanics, neurophysiology and physiology. He has presented at more than 70 international conferences and is regularly invited to deliver addresses at symposia and conferences.
He is an Associate Editor for Acta Physiologica, the journal of the European Physiological Society, has served on the editorial board of the Journal of Electromyography and Kinesiology and currently reviews for several additional scientific journals. Andrew has been a member of the International Society of Biomechanics since 1989 and has presented his research at nine of their meetings. He also is a member of other societies including the Society for Neuroscience, The American Physiological Society, The American College of Sports Medicine and The Australian Sports Medicine Association.

He says: "I have been the Awards Officer of the ISB Executive Council since 2007 and will continue to bring to the society my expertise and knowledge of using biomechanics to address issues of human movement."

Wolfgang Potthast, Ph.D. (Germany)

Wolfgang Potthast graduated in Physics from the University of Cologne and he graduated in Sport Sciences from the German Sport University Cologne. He received his PhD in sport sciences from the German Sport University Cologne in 2005. He is currently working as an assistant in the group of Prof. Gert-Peter Brüggemann at the Institute of Biomechanics and Orthopaedics at the German Sport University. His main research topics are related to the loading and loading response of the musculo-skeletal system. The effects of technical aids as footwear, prostheses, prosthetics and other sports equipment are one of his main research fields. Wolfgang is member of various sports and biomechanics related national and international societies. In 2007 he was elected as a member of the executive board of the Footwear Biomechanics Group and in 2008 he was elected into the board of directors of the ISBS. In 2005 Wolfgang Potthast received the New Investigator Award of the ISBS and the Nike Basic Research Award of the Footwear Biomechanics Group. He won the Novel Award in the Emed Scientific Meeting 2006. Next to his teaching obligations at the Sport University he is the assisting coordinator of the new master program Sports Technology.

He says: "The ISB allows the exchange of knowledge on a high scientific level. This is possible because dedicated experts discuss topics without exaggerated competitiveness or petty jealousy as sometimes found in other scientific communities."

Marco Aurélio Vaz, Ph.D. (Brazil)

Marco Aurélio Vaz, Ph.D., obtained his B.Sc. (Honors) from the Federal University of Rio Grande do Sul (Brazil) and his Ph.D. from the University of Calgary (Canada). After his PhD he returned to Brazil, where he has been lecturing (Neuromechanical Bases of Human Movement) and where he currently conducts his research in the Exercise Research Laboratory. His research focuses on muscle function and adaptation to exercise. In 2003 he returned to Calgary for a one year sabbatical, where he did some work in Biomechanics of the Musculoskeletal System. His collaborators include people working in muscle mechanics, muscle architecture, muscle fatigue, medicine, and exercise physiology. To date he has supervised 19 graduate students to completion of their degrees. He has served on the Executive Board of the Brazilian Society of Biomechanics for several years and has forwarded in the past a proposal to host the ISB Congress in Brazil. He became a member of the Society in 2006.

He says: "Despite the financial difficulties from researchers in developing countries to attend regularly ISB congresses, I have made an effort to get funding for all congresses since 1997, and was able to attend the conferences in Zurich, Calgary and Munich. I want to help the Society in terms of reaching researchers in these developing countries, finding their needs and seeking possible ways for the Society to help these scientists"

Krystyna Gielo Perczak, PhD (USA)

Krystyna Gielo-Perczak is Assistant Professor in the Physical Therapy Department at the University of Hartford, Connecticut, and Associate Staff in the Biomedical Engineering Department, in the Worcester Polytechnic Institute, Massachusetts. She obtained a M.Sc. (with Honors) in Aeronautics and Mechanical Engineering and her Ph.D. in Biomechanics and Mechanical Engineering from the Dept. of Aeronautics and Mechanical Engineering at the Technical University of Warsaw, followed by postdoc training in Biomechanics in the Department of Mechanical Engineering at University of Torino (Italy). She gained academic experience and mentored the students by serving as a faculty member or visiting lecturer at several universities around the world, including Technical University of Warsaw, University of Toronto, Victoria University of Technology and University of Oregon. Also, she worked at University of Waterloo as a Technical Director of Gait Laboratory. Her research interests are modeling and simulation of the musculoskeletal system, control theory and the systems approach for preventing musculoskeletal injuries. She organized the Computer Simulation Tutorial Workshop at the ISB Conference. She is as a member of the Editorial Board of *Theoretical Issues in Ergonomics Science* and a Consulting Editor for *Occupational Ergonomics*. She has been a Biomch-L co-moderator since 1990. She was a member of the executive council of the Technical Group on Computer Simulation (TGCS) from 1993-97, and she served as a member of the ISB Long Range Planning Committee in 1994-95. She crosses boundaries of many scientific approaches. Currently, she serves as chair of The Individual Differences in Performance Technical Group in Human Factors and Ergonomics Society.

She says: "In human performance modeling we need to consider cognitive as well biomechanical factors in the task analysis. We make many attempts to adapt the theoretical concepts of mechanics to biomechanical knowledge. However, we should look for the existing mechanism in the human body, which leaves room for variation and flexibility. Thus, there is an emerging need for the concept of a human system with perceptive insight into complexity of the mutual relationships of the human biomechanical measures and cognitive factors. The description of the individual should reflect the biomechanical measures of fatigue, and the complexity of brain activity, which includes cognition and the dynamic process of knowing."

David Lloyd, Ph.D. (Australia)

David Lloyd is currently Associate Professor in the School of Sports Science, Exercise and Health at the University of Western Australia, Perth, Australia. He is also an Adjunct Professor in the Department of Mechanical Engineering at the University of Delaware. David obtained his PhD from the University of New South Wales in Sydney, Australia and had a postdoctoral position in the Sensory Motor Performance Program at Northwestern University in Chicago, USA. David's research focuses on the development of neuromuscular skeletal modelling and its application to understanding the causes of and preventing knee joint osteoarthritis and injuries in sport. He has published over 60 research papers, over 110 conference proceedings and 5 book chapters. David is on 4 editorial boards, and an Associate Editor for the Journal of Applied Biomechanics. David has been a member of the ISB since 1991, first as a student member, then a full member on graduation. Since 2005 David has been a reviewer of ISB Student awards.

He says: "I have gained much by being a member of the ISB, creating friends and colleagues all over the world. The ISB meetings have always been places of stimulating discussion and steered my research programs to new and productive directions. I wish to encourage new young researchers in biomechanics to become members of the ISB and to use the ISB meetings to interact with experienced ISB members to develop their research programs. I wish to encourage open exchange of ideas and information between all members of the ISB to grow the discipline of biomechanics in exciting new directions."

Robert van Deursen, Ph.D. (Great Britain)

Robert van Deursen is Director of Physiotherapy and of Research at the School of Healthcare Studies, Cardiff University, and he leads the clinical biomechanics laboratory, Research Centre for Clinical Kinesiology, which he established in 1998. He obtained a Ph.D. in Kinesiology at Penn State University, USA (1997) working at the Centre for Locomotion Studies (CELOS). Prior to this he obtained a B.Sc. in Physiotherapy in Utrecht, the Netherlands (1981) and a M.Sc. in Human Movement Sciences at the Free University in Amsterdam (1994).

His research is in the area of rehabilitation using biomechanics to develop ways of measuring functional performance and outcome in patients. The recovery from knee injury and prevention of later complications; the effect of footwear and exercise on patients with diabetic neuropathy and related foot complications; and the recovery from stroke and maintenance of mobility in long term neurological conditions are his main areas of research. This work is carried out collaboratively with clinicians and researchers in other areas such as medicine, biosciences, engineering, mathematics and computing.

He has been a member of the ASB and ISB since 1998 and has been a member of the ISB Executive Council since 2007. Within the context of Education he works with the ISB student representative and on the on-line dissemination of ISB keynote lectures.

He says: "I have both a clinical and biomechanical background which provides me with a good understanding of both fields. Biomechanics is a powerful tool to explore movement but is not always well understood within the clinical environment. On the other hand the need for good research in the area of rehabilitation is clearly present. It is my mission to make biomechanics more available for research in this area by developing clinically relevant research methods and procedures so that appropriate evidence becomes more readily available. This is also what I bring to the ISB council."

Candidates for Student Representative in the Council

Felipe P Carpes - PhD Student (Brazil).

Hello. My name is Felipe P Carpes, and I am

from Porto Alegre, in the south of Brazil. I completed my graduation in Physical Education in 2004 at Federal University of Santa Maria with a senior project on mechanics of cycling. In 2006, I completed a Masters Degree in Industrial neering at the same University. Simultaneously, I moved to Porto Alegre in 2006 to start the rate program at Federal University of Rio Grande do Sul. Currently, I am a PhD student in Human Movement Science. I am interested in the effects of lateral preference on lower limbs performance. In 2008 I was successful in my application for an ISB International Travel Grant, which made possible travel to Calgary, where I spent two months in the Human Performance Laboratory of The University of Calgary under supervision of Dr. Darren Stefanyshyn. During the preparation for the application I saw how important the participation of the ISB student representative is. Ediuska gave me all the information I needed. The ISB has given me one of the more important opportunities of my academic trajectory until now, and I want to reward the International Society of Biomechanics doing my very best to help other students play an active role in the society.

The ISB is undertaking significant efforts to increase interest of students to join the society, and I am sure that it should be a continuous process. Looking to keep the work started by Ediuska, as your ISB student representative, my primary objective is to increase the number of students joining the society as well as the opportunities to the students become more active in the society. I want to create specific students groups for each continent, which will make possible those students living closer each other to participate together in regional meetings. For this objective, I also aim to create a student committee to increase the communication with fellow students from different continents in order to exchange information, ideas and concerns, and why not develop projects together. I also want to make possible that regional events on biomechanics have a special session for divulgation of the ISB grants and opportunities for students. I hope it works also to encourage development of research on biomechanics in regions of the world with limited funds for science. Together the ISB executive council I will work to increase the number of grants for students trying the sponsor of companies that contribute to the biomechanics advance in specifics countries.

I would be honored to serve as your student representative in the International Society of Biomechanics.

Andrea Muschenborn - PhD Student (USA)

My name is Andrea Muschenborn and I was born in El Salvador in the year 1986. Currently I study Biomedical Engineering at the University of Houston. After I graduate with my Bachelors' this coming May, I want to pursue a Masters' in the area of biomedical devices. I am interested in becoming ISB's next student rep. primarily because it is an opportunity to make a difference in the lives of others. I consider myself as a good candidate for this position for two reasons. First, I share the same ideology as ISB when it comes to promoting and expanding the study of biomechanics to the whole world. I believe that being able to contact the world's most successful scientists through this organization is a great investment in the education and career development of every student who gets this opportunity. Also, coming from a third-world country, I know the importance of international networking to get access to the best technology available.

Second, my leadership skills, my ability to learn rapidly, my strong work ethic, my motivation and my desire to contribute in increasing scientific advances for the improvement of the quality of life of those in need, match the characteristics that I believe a student rep. should have. If I become the next student rep I will work hard on raising an even greater awareness of the existence of this organization so that more students can join and take advantage of all the opportunities that ISB offers. I will also target under-represented countries where the study of biomechanics is still nascent. I will organize student exchanges as well as seminars and workshop in which scientists and professors will come to those countries to talk about the most recent advances and how they can incorporate in biomechanics research. I am also interested in providing a specific region with the necessary equipment to start a biomechanics laboratory. In addition I will encourage the participation of other student members so that they can share the ideas and projects they have. ISB already offers great opportunities; however, I would work on informing more people about them. Depending on the turnout, I would propose to increase the number of travel grants so that more students can participate at once.

Allison Gruber - PhD Student (USA)

My name is Allison Gruber and I am a second year PhD student in the Department of Kinesiology at the University of Massachusetts, Amherst

under the direction of Dr. Joseph Hamill. I previously worked for Dr. Hamill and a physiology professor as a lab tech after receiving my Bachelor's degree from UMass. I then had the pleasure of achieving my Master's degree at East Carolina University under the direction of Dr. Paul DeVita before returning to UMass to work towards my PhD.

I study lower extremity biomechanics and I am interested in integrating physiological concepts into biomechanics research. I am currently working on projects examining how metabolic cost changes with altering movement characteristics. My graduate assignment is primarily as a Research Assistant in the Biomechanics Laboratory. I also teach a laboratory section for the undergraduate Anatomy and Physiology course in the Kinesiology Department.

I became interested in the field of biomechanics as an adolescent athlete, participating in field hockey, ice hockey and lacrosse. The sport that has become a lifelong passion is figure skating, particularly the growing sport of synchronized skating. After being a 10 year member of an internationally competitive team, I enjoyed coaching young skaters both on and off the ice. I am currently involved with a synchronized skating team by consulting for their off-ice training program and have been a volunteer for their pre-participation fitness screen. There are a number of projects investigating the fitness profiles of these athletes and demands of their sport. I am thrilled to bring my recreational life and my academic life together with my involvement in these ongoing projects.

If I am elected to the position of ISB Student Representative for 2009-2011, I will work towards continuing the goals of past representatives in addition to implementing my own goals. For example, I would like to continue the present student representative's work promoting biomechanics and the ISB in economically developing countries. I wish to have a more active involvement in the student section of the ISB website, and hope to increase student participation in ISB and increase student exposure to the other labs, research groups, and learning opportunities. To accomplish this, I would also like to create a database of labs and experts in the field in order for students to find and reach out to faculty members with shared research interests. In addition, I would like to provide a forum for the interaction between students through the student section of the ISB website. I would also like to increase participation in the exchange program by encouraging researchers to seek out student visitors and increase student interest in their program. I will also continually explore new grant opportunities and hope to increase funding for ISB student programs from corporations.

Results of the International Society of Biomechanics Sponsored Speaker Series for South America: BRAZIL

Ediuska Laurens, Ph.D. Candidate, ISB Student Representative

The International Society of Biomechanics is thrilled to announce the success of the first out of three workshops dedicated to assist developing Biomechanics in South America. This workshop took place in Brazil as part of the "Sponsored Speaker Series for South America" in which ISB fully funds the invited keynote speaker for 3 to 5 day workshops.

The following account is an edited version of a report written by Prof. Marco Vaz, Universidade Federal do Rio Grande do Sul (UFRGS), in which he summarizes the impact and importance of this workshop for the Biomechanics Brazilian Community, especially the biomechanics students.

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REPORT OF THE WORKSHOP ON MUSCLE ARCHITECTURE

Description of the workshop activities.

The 1st Brazilian Workshop on Muscle Architecture was organized by M.Sc. Ediuska Laurens (ISB Student Representative), Prof. Marco Aurélio Vaz (UFRGS-Brazil), M.Sc. Rafael Reimann Baptista (UFRGS-Brazil). The workshop took place at the Exercise Research Laboratory of the School of Physical Education of the Federal University of Rio Grande do Sul, in Porto Alegre, RS, Brazil. The invited speaker was Prof. Adamantios Arampatzis from the Sports University of Cologne, Germany.

This was a 3 days workshop with the participation of around 46 attendants, including faculty members, PhD students, MSc students, Specialization students, and undergraduate students, Fig1.

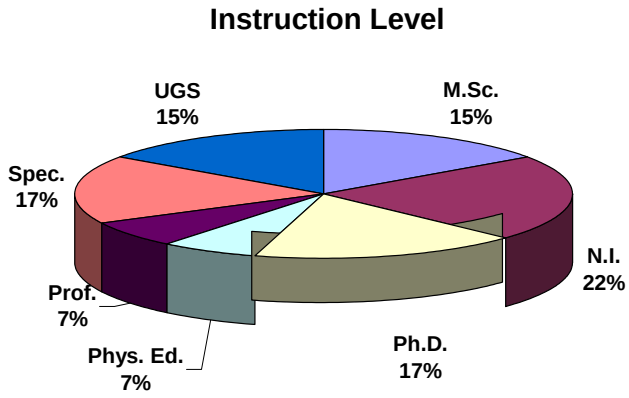


Figure 1. *Participants of the workshop had different levels of education or instruction. Graduate students were the majority of the participants (Prof. = Professor; PhD = PhD student; MSc = Master student; Spec = Specialization student; Phys. Ed. = Physical Education teacher; UGS = undergraduate student; NI = not informed).*

General evaluation of the workshop

Figure 2 shows the general evaluation or a general overview of the participants with all the activities developed during the workshop.

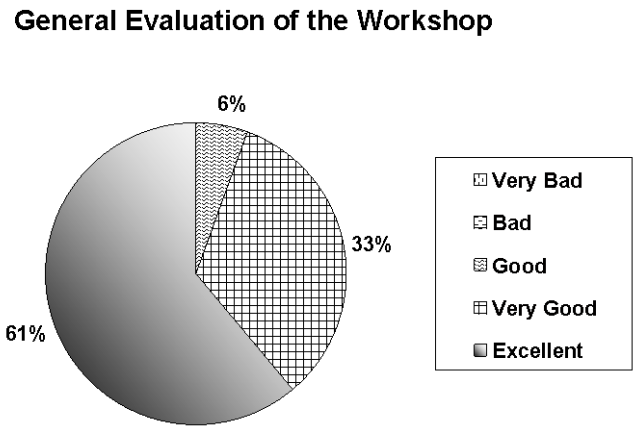


Figure 2. *Percentage distribution of the answers for the general evaluation of the workshop.*

The fact that 61% found it excellent, 33% very good and 6% good reveals that the workshop was successful in the development of Muscle Architecture, a new or young area of research in Brazil. Today, there are only two Brazilian universities (and probably the only ones in South and Latin America) that have an ultra-sound system fully devoted for research in the musculo-skeletal area: one in the Federal University of Rio de Janeiro and the second one in our University. The possibility of having this workshop will help Brazilian students and researchers to improve the science done in this area of Biomechanics.

The Brazilian Society of Biomechanics, and more specifically our research group, was honored to receive this support from the ISB. We hope to harvest some seeds that were planted in our country by watching good papers being published in international journals in the near future. We would like to thank Profs. Brian Davis and Walter Herzog for the continuing support over the years to Brazilian Biomechanics.

Some moments of the workshop

Finally, we would like to register some moments of the workshop

First day of the workshop.

Prof. Arampatzis
during the first day.

Students during
the coffee break.

Prof. Arampatzis and
"Anacleto"
(some say he was a former
student in the faculty).

Prof. Arampatzis and M.Sc. student Fernando Aguiar Lemos.

Editors note

Dear readers

In this issue is at least two extremely important pieces of information; first, the deadline for abstracts for ISB 2009 (15th February) and second, the list of all the candidates that you can choose between in the election 2009. These brave candidates deserve that you at least vote! If you actually read the editors note, chances are that you are a dedicated ISB-member. And if you care about our society, you also care about who takes care of ISB. So read carefully what the persons, offering to serve ISB, stand for.
And once again, I am astonished about the data material hidden in the archives of ISB. Enjoy the little piece of scientific fraud documented in the video sequence from the two different perspectives.
Also, enjoy the activities of the future top researchers within biomechanics. Those reporting grant activities but also the initiatives of our student representative. One comment is that we were really right in dedicating a position in Council to a student; Cheryl and Ediuska have served us really well. Another comment is for the students: Go back and make a choice between the three candidates and afterwards make sure that you really use your representative!

NOTES FROM THE ARCHIVES

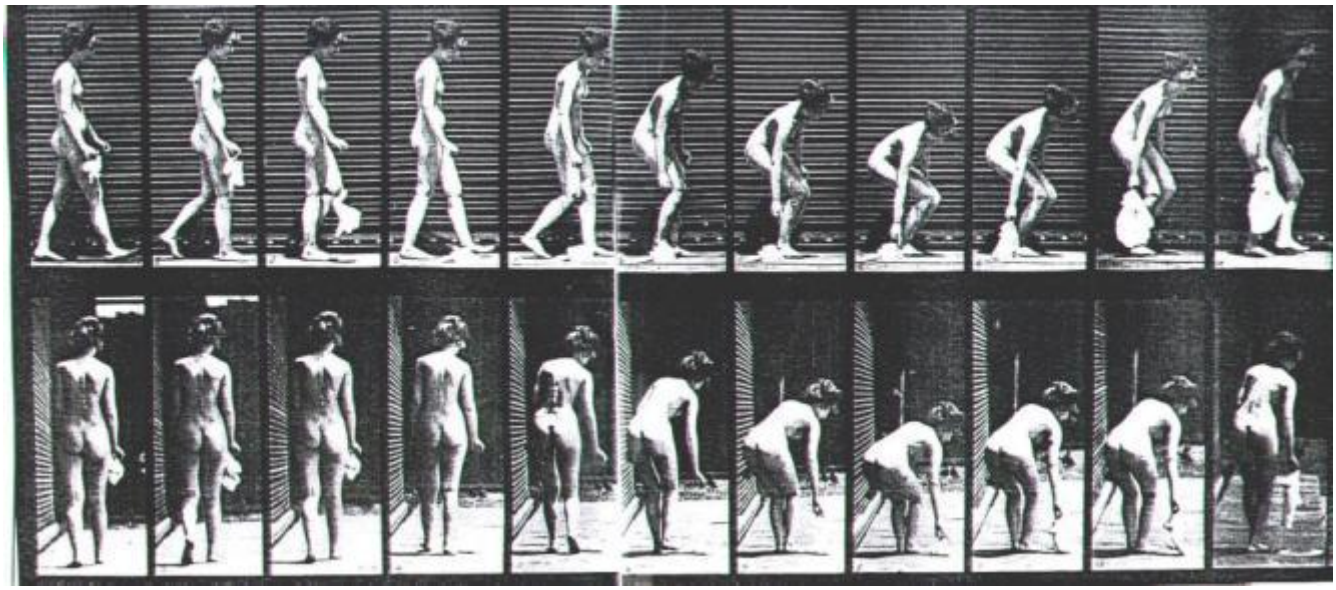
Eadweard Muybridge (1830-1904) is considered one of the forefathers of biomechanics, with our society's most prestigious award named after him. In 1884 Muybridge started work at the University of Pennsylvania attempting to photographically catalogue human and animal movement. These series of images are particularly noteworthy for the range of activities examined (e.g., walking, running, ascending stairs, swinging a pick axe, ironing, and climbing a ladder).

Animal Locomotion was published in 1887, a review published a year later in ***Nation*** claimed,

> "*Here we have the naked, absolute facts: here, for the first time, human eyes may see just how the human body moves in the performance of its functions, how backs bend and hips balance and muscles strain and swell.*"

The fact that Muybridge's subjects were predominantly naked was in contrast to the social standards of the time, and probably accounts for the covert reference to the nudity.

Study briefly the following sequence of a woman "*Dropping and lifting a handkerchief*",



As Muybridge wrote,

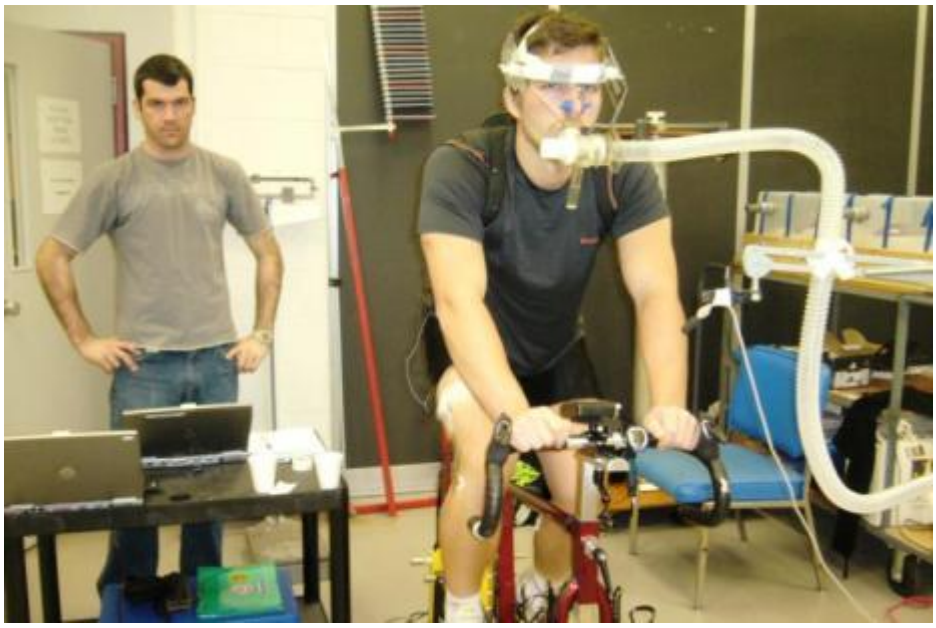
> "*The figures illustrating the various movements are reproduced from the original negatives by the photo-gelatine process of printing, without any attempt having been made to improve their pictorial effect, either in outline or detail; or to conceal their imperfections*."

But note the position of the handkerchief in the third image of the top row compared with its rear view counterpart in the bottom row. In the bottom row the third image is actually a repeat of the first image. Muybridge was not above a bit of data massage. There are a number of incidences of such anomalies in the work of Eadweard Muybridge.

[*The ISB has an archive of its important materials, kept at Penn State University. If you have any materials you think should be in the archive, and you would consider donating them to the archive please contact John Challis (jhc10@psu.edu).*]

2008 ISB Student Travel Grant report
Felipe P. Carpes

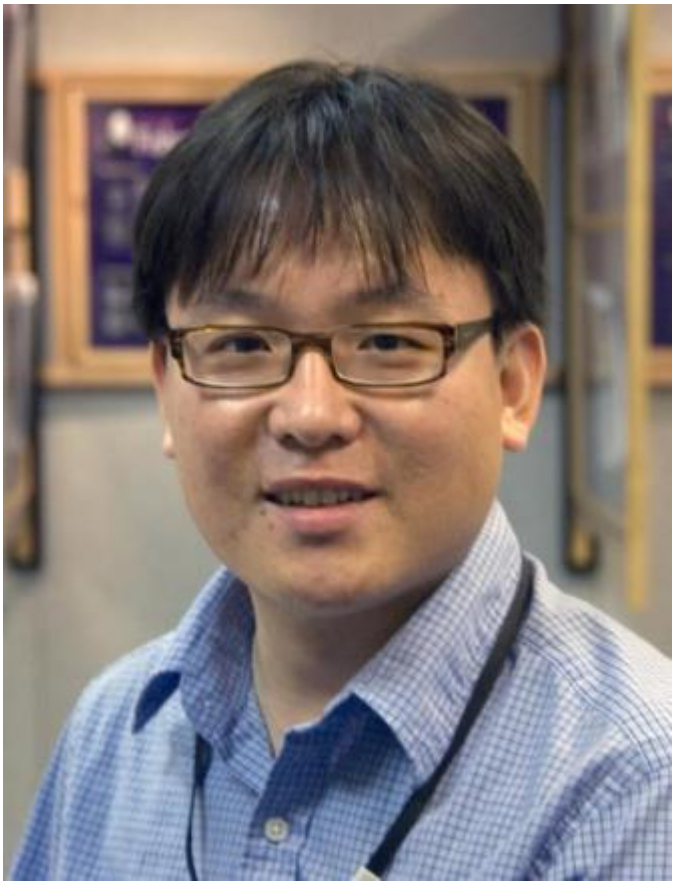
A visit from Exercise Research Laboratory of Federal University of Rio Grande do Sul to the Human Performance Laboratory of The University of Calgary. **Supervisor: Dr. Darren J. Stefanyshyn**



After I became a student member of the ISB and learned about the student grant program, I applied for an ISB student travel grant. Dr Marco Vaz, who is part of my PhD committee in the Federal University of Rio Grande do Sul in Brazil encouraged me, and sponsored my application. I decided to visit the Human Performance Lab (HPL) in the University of Calgary to spend time working in the group of Dr Darren J Stefanyshyn. There were several reasons for this choice. Our laboratory in Brazil has a good relationship with the HPL since my late advisor Dr Antonio Guimaraes and Dr Marco Vaz were past students in Calgary. Indeed, I think the HPL is among the best places to study biomechanics. Dr Vaz introduced me to Dr Darren J. Stefanyshyn, who develops several projects on the lower limbs biomechanics. The purpose of the travel was to strengthen my knowledge on lower limb biomechanics and to complete part of my PhD research in the HPL. After I sent the application, I waited anxiously a couple of months for the result. I sent several e-mails to Dr Peter Milburn, who patiently always replied me. In Easter of 2008 I checked my e-mail box early in the morning and the expected message from Dr. Milburn was there. I will never forget the e-mail text: "Felipe: Please see the attached letter, and please let me know if you have any difficulty in opening this letter."
After read the letter stating that I was the recipient of the award, the first action was to forward the message to my friends and of course for Dr Vaz and Dr Stefanyshyn. The travel planned for October 2008 was confirmed. Luckily, Dr Stefanyshyn visited Brazil in May 2008 to talk in a meeting on Footwear Biomechanics, and I met him personally. In October, I went to my first experience abroad, in Calgary, where I stayed for two months.

After presenting my project for the students of Dr Stefanyshyn, we completed several measurements for muscle efficiency and muscle activity during cycling. Previous studies of my PhD research showed that lower limb asymmetries could be related to aspects such as force output, training, exercise intensity and lateral preference in cycling athletes. The objective for the research in collaboration with Dr Stefanyshyn was to investigate if the preference for one side of the body could be supported by improved neuromuscular efficiency considering motor unit recruitment and muscle efficiency. Apart from my research, I was exposed to research of over 150 scientists and students of the HPL. I also attended the weekly HPL research seminars, where I learned and gained experience in the various areas of expertise of the laboratory. This experience increased significantly my understanding about biomechanics, and in Brazil, my objective is to develop some additional projects with Dr Stefanyshyn to start an international collaboration. I would like to express my gratitude to Dr Marco Vaz for the confidence and opportunities in Brazil. I am also thankful for Dr. Darren Stefanyshyn for supporting my visit to the HPL and for providing me one unforgettable professional and personal experience. I also would like to thank the friendship and support of Blayne Hettinga, Geoff Smith and Erica Couillard during my time in Calgary, especially during the data collection. Thank you very much International Society of Biomechanics for this amazing opportunity. I would like to encourage the biomechanics students to join the ISB and apply for this grant.

ISB Congress Travel Grants Report
Dong Gil (Andy) Lee



I would like to thank ISB council members for giving me a congress travel grant to attend "International Symposium on Robotic Applications in Biomechanics" on May 3, 2008 to May 5, 2008 in Banff, Alberta, Canada. In this symposium, I presented one of my doctoral topics: "Determination of mid-foot joint pressures using a robotic gait simulator: Diabetic differences and artificially induced flatfoot deformities." The symposium consisted of small group meetings; however, throughout the symposium I was able to further examine and appreciate various application potentials of robotic systems in biomechanics field. For me this added to my background knowledge that I obtained when I worked in the field of biomedical engineering in Korea. From the Banff symposium, I had opportunities to come across many different types of robotic systems used in biomechanics field for knee and foot studies. Amazingly, the field of the robotic systems in biomechanics has over two decades of history! I was also able to personally meet with leading research teams in the biomechanics field and to build invaluable personal networks for future collaborations. For example, one of the leading robot hardware vendors attended this symposium and provided useful technical information and outlined future applications. In my discussions with this company, we talked about our troubleshooting robotic systems and our team was able to provide some suggestions to their engineers. With this symposium, I realized the significance of my robotic study, for I have found many possibilities to incorporate robotic systems for future clinical and research applications.

It was rather a short travel; nonetheless, it was priceless moment in my life. After attending this symposium, I was able to reconfirm my passion and dedication in the field of biomechanics. I would like to thank ISB once again.

Dong Gil (Andy) Lee

XXII Congress of the International Society of Biomechanics
Cape Town, South Africa, July 5-9, 2009

The building, where the 2009 ISB Congress will take place

Greetings from Cape Town where the preparations for the meeting in July are coming along nicely. There are three items about which I wish to update you: tutorials; keynote speakers; and the abstract deadline.

Krystyna Gielo-Perczak has arranged for excellent tutorials for you: (1) "Wearable Technology and its Applications in Rehabilitation" by Dr Paolo Bonato; (2) "Biomechanical Testing and Simulation Techniques in Skeletal Research - the Importance of Hierarchy" by Dr Ralph Müller; (3) "Foot Biomechanics: Clinical Applications" by Dr Peter Cavanagh; and (4) "Biomechanical Modelling and Simulation" by Dr Scott Delp. The sooner you register, the better your chances of securing your place at these tutorials, so don't delay!

For your keynote speakers we are delighted to announce the following names. Kicking off the conference on Sunday 5 July as our Wartenweiler Memorial Lecturer will be Dr Patrick (Paddy) Prendergast of Trinity College Dublin in Ireland. The Muybridge Award Lecture will be given by Dr Mimi Koehl of the University of California, Berkeley on Wednesday 8 July, while the ISB President's Lecture will be delivered the next day by our President, Dr Walter Herzog of the University of Calgary in Canada.

Other keynote lectures, which will be plenary sessions and therefore available to all delegates, will be given by Dr Margot Damaser of the Cleveland Clinic Foundation, Dr Diane Damiano of the National Institutes of Health, Dr Carlo De Luca of Boston University, and Dr Charles Taylor

of Stanford. We have two other keynote speakers planned so please check the web-site for details in the next few weeks.

The abstract submissions are trickling in (25 so far, in mid-January) but we are anticipating that things will hot up in the next four weeks! Remember that the deadline is 15 February and the sooner you send in your abstracts the better it will be for us as organizers. If you have not already checked out the website, here it is:

http://www.isb2009.org

We look forward to seeing many of you here in Cape Town in early July!

Cape Town Harbour and the Table mountain in the background…… Photographer Dr Gordon Robertson

New members to ISB

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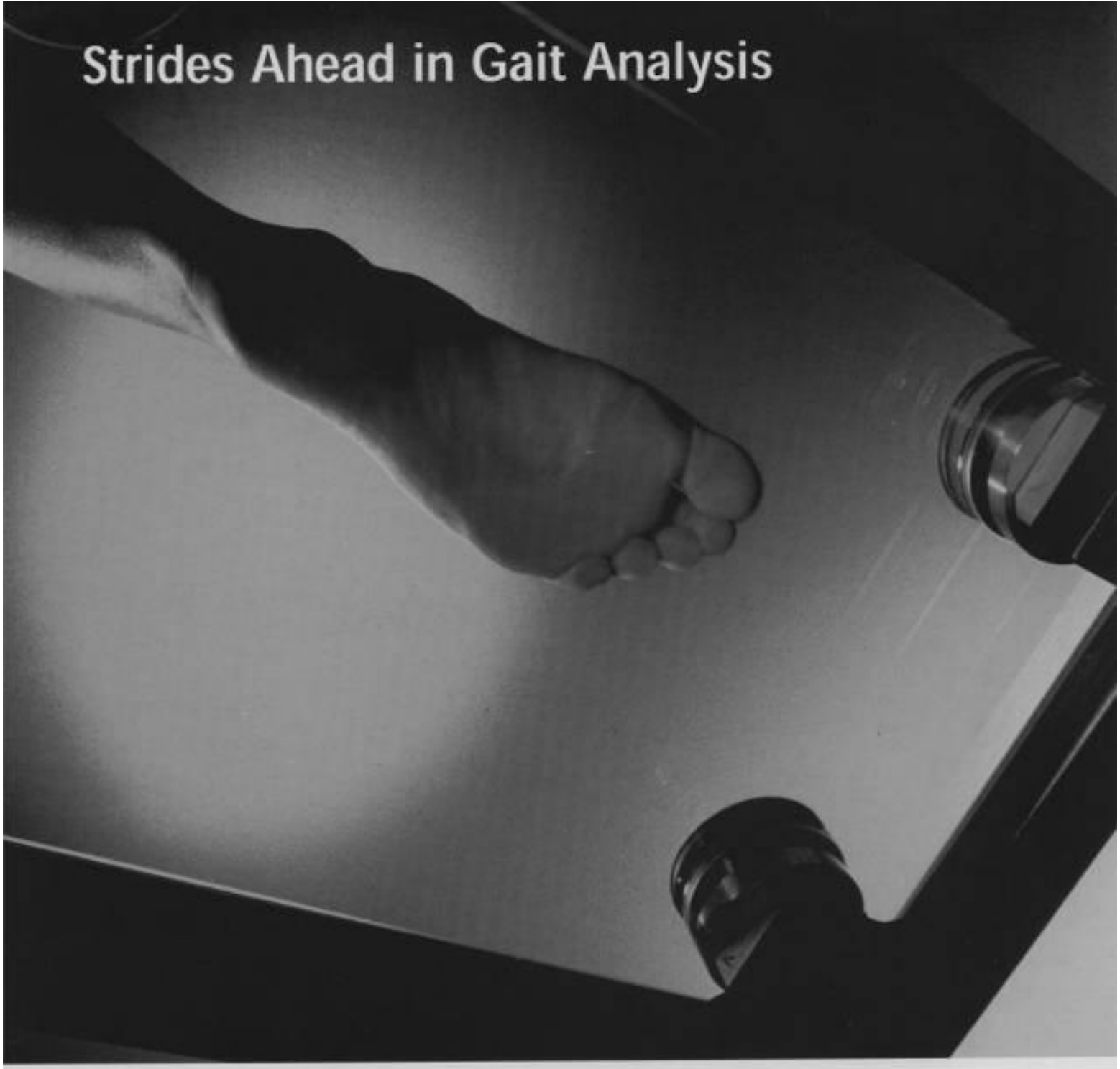

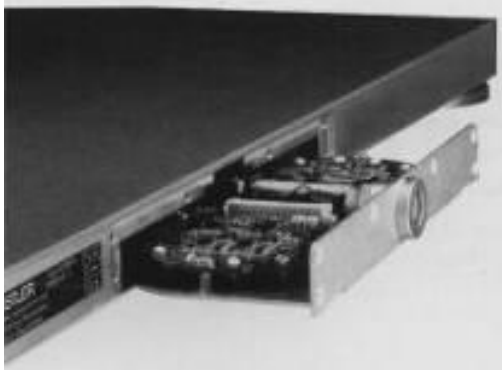

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