



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 Letter

Students' lives are vastly different from what they used to be when I was a student, and so are the responsibilities, the training and the expectations. The academic world has become competitive and landing a job at the end of six years of graduate school and three years of postdoctoral training is not trivial. What has changed? Are these changes meaningful? How do you prepare for an academic career? And what are the expectations once you land a job as an assistant professor at a major university. These are the questions my students ask me, and the answers have changed over the past 23 years of my academic career. What used to be true is not true anymore.

So, this president's message is for the students, and I want to emphasize that the thoughts below are based on personal experiences, and they may not reflect other people's opinions. But they have helped some of my own trainees become academic leaders and successful scientists.

Every student should have a hero, somebody to look up to and admire. My hero was Andrew Huxley. I admired his 1954 and 1957 papers establishing the sliding filament, then the cross-bridge theory of muscle contraction. Those were real revolutions in science, and the last paradigm shifts in this particular field. Fascinatingly, Huxley's muscle physiology work was all done on essentially the same preparation: single frog fibres. Similarly, many of the 20th century leaders in muscle physiology, such as AV Hill and Paul Edman, relied greatly on a single preparation for their entire career. This gave them great strength in a relatively narrow area. I believe that the successful biomechanist of the 21st century must have a much broader base, similar to the Renaissance scientists epitomized by figures like Leonardo da Vinci, people with multiple talents and multiple training. As a student, you might want to split your graduate training between two supervisors with strengths in different areas, and you may want to work in different labs. For biomechanics, it has become essential to not only be a good engineer and a good biologist, but also have some foundation in related areas: neuroscience, motor control, anatomy and physiology. This will help in understanding the complex issues being

addressed in today's biomechanics arena. Tomorrow's scientist is a multi-talented, multi educated person with exceptional communication and managing skills.

But first, you need to get through graduate school. The requirements for a doctoral degree at the University of Calgary are as straight forward as they are daunting for many students. You need to pass a candidacy exam (an exam of basic knowledge in your area of expertise) and then defend your thesis successfully at the end of your studies. Students will invariably ask how to prepare for the candidacy exam and the thesis defence, not realizing that there is little to prepare. By virtue of being in graduate school, you have already shown that you are intelligent and have the capacity to pass any "knowledge" exam. But neither the exam nor the thesis defence are primarily about "knowledge", they are about character. I have been involved in about 60 candidacy exams and theses defences and about 10% of those ended in the candidate failing. In no case did the student fail for lack of knowledge. Invariably students fail because they misjudge what they know. They give answers either pretending to know, or not realizing that they do not know and they proceed confidently to give incorrect answers. The one piece of knowledge you need to have is to know what you do not know, and more importantly being able to admit that you do not know. Being able to say "I do not know" is one of the most powerful answers in these exams, as it is in other scientific settings.

And then you submit your first paper and it gets accepted with major revisions. You look at the suggestions by the referee and your blood curdles as you have been completely misunderstood. Is there really nobody who can appreciate and understand the brilliance of your work? But at the end of the day you may or may not agree with a referee, and you may state that in your responses to the referees, but make no mistake, more often than not, referees make thoughtful and good comments and the biggest mistake you can make is to not take them seriously, and not address the points raised by them in a conscientious and serious manner with the goal to improve your work.

You spent many hours on your paper and you want to be taken serious; so do the referees.

Finally, your dreams come through and you get that first tenure track job as an assistant professor at *Dream University*. When I got my first job, there was no start up money; I had no lab, teaching was required from day one on, but I was embedded in a nurturing environment. In the first four years of my career, I wrote one grant (after all that is all I needed to do the work), and supervised one student. Today, most jobs come with substantial start up funds, a lab to call your own, and probably little if any teaching in the first year of your appointment. What a beautiful setup. But likely, you are expected to write multiple grants, publish several papers and start a research group with several students and technical assistants instantaneously. But research is about ideas not money. It cannot be hurried along. It's about time to reflect and time to discuss, not about sitting in front of your computer writing six grant applica-

tions on variations of the same theme. The trick is not to write grants but to get them. Don't let yourself be pushed into a "business-like" approach or "fit for purpose" as my colleagues in the oil and gas industry like to say. Academic research is not about "fit for purpose"; it is about excellence, that worn out word that has been so inflated to the extent of almost becoming meaningless. Do not let it become meaningless to you. So, how do you become a successful, academic biomechanists? Expose yourself to multiple lab experiences during your training, preferably in different disciplines. Remember that science and research is about ideas, and passing your graduate exams is about your character and integrity not about knowledge, and finally, do not be pushed into the "business" of academic life, it's the science you do that counts and the students you train, not the number of grants you apply for.

Walter Herzog

Experiences of Carol Scovil in Nepal

Written by Carol Scovil and compiled by Garrett Noble, Cleveland Clinic

Monday, October 8, 2007

I'm going to Pokhara Nepal, Jan. 2008 for a year to volunteer at a hospital using my skills as a medical engineer. I will be adapting wheelchairs so that they work in rural communities - a challenge in a mountainous country like Nepal.

Friday, January 11, 2008

I just got the news - my visa is ready in Nepal, and I can fly as planned on Monday. Hooray! I'm excited to finally be going. It'll be great to finally be in Nepal.

Sunday, February 3, 2008

I'm learning both spoken Nepali, and the script. To write something, you have to translate from English to Nepali words, then from Roman letters to Nepali letters (vice-versa when reading). Now that I know most of the letters in the Nepali alphabet, I am able to write sentences in Nepali, but invariably all the translating makes my head hurt.

March 2, 2008

Monday morning the two visiting Canadian doctors, Manoj (the head of the occupational therapy department), and myself headed out to visit two spinal cord injured (SCI) patients from Green Pastures Hospital



in their homes. The first had a wheelchair, and lived in a village on the river plain. After driving out of Pokhara for about half an hour in the Land Rover, we headed off road down the river valley. When we reached the patients village, we found her out in the community, visiting with her neighbours. Community development people from Green Pastures Hospital had built her a 2 room house that she could use her wheelchair in, with ramps going in both doors. Unfortunately, due to space constraints, the ramps were too steep, and she was unable to get in and out of her house on her own. Still, it was reasonably well set up.

However, she was not too healthy and she had several pressure sores. One from sitting too much – since she needs help to get in and out of her house, she couldn't get inside to lie down easily, and so stayed sitting. She had an open wound on her leg, where it was rubbing against a lever on the wheelchair, and a pressure sore on her foot where her foot rubbed against the footrest. There is nothing like working with leprosy and SCI patients to see how important pain is in keeping ourselves healthy.

We weren't able to do too much at that point to help – I poked around with the wheelchair, and found that the lever was necessary to keep the foot rest on, so I couldn't do anything immediately to help besides binding up her leg with a piece of cloth. The pressure sore from sitting was deep, and will require surgical treatment – so if she comes back to the hospital I could do something a bit more permanent with fixing her chair. The sore on her foot was not so advanced, and it was suggested that she wear shoes, slippers or even socks at all times when in the chair to allow it to heal. She didn't like wearing shoes inside, and didn't own any socks or slippers. That's easy, I thought, I'll give her the socks I'm wearing. So I did. And we added socks to the growing list of things we would remember to bring on home visits in the future.

[Through this visit], we got an idea of something I might be able to do to improve the chairs of patients. It is probably not unusual that patients are unable to get into their houses on their own, and thus are forced to sit for long periods in their chair. If there were a way to allow them to adjust the angle of the chair (seat and backrest together) while they were sitting in it, they would be able to shift the location of pressure from contact with the seat from one spot to another on their body, hopefully reducing pressure sores.

There are some huge challenges for wheelchair use in Nepal, and there are going to be lots of things that will be nearly impossible to solve. However, on my first visit to patients in their homes, I was reasonably encouraged by how much they are able to do, and that already we have some ideas on how I might improve things for them.

Sunday, May 18, 2008

This week at work we had an exciting demonstration. Neitra, who is paraplegic with no sensation or muscle control from the waist down, was showing us how she could walk. Using a walker and two leg braces that lock her knees and prevent her toes from dropping, she can walk. She has no functioning hip muscles at all, so she uses her pelvis and trunk muscles to lift and swing her leg. It's so great to see, and she can really move. I had heard of this method of walking for paraplegics who still have pelvis/trunk muscles and good balance, but had never seen it in action. What a difference for a person to be able to get up and move around on their feet, rather than being confined to a chair. Neitra got her braces from a hospital in Kathmandu, and already our orthotics department has copied them and have made one for a hemiplegic (only one leg paralyzed) woman for her paralyzed leg. This other woman was someone we had hoped would be able to walk with a walker, but it is great to see her learning to walk with Neitra encouraging her. It's very cool to see two people who were both confined to their beds now up and walking.

At our meeting on Friday, there was a sense of wanting to really make sure things work out for Neitra, and that she doesn't lose her school year, and get frustrated or depressed with not having enough to do. I am certainly learning how much more there is to rehabilitation than just helping with the physical problems.

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ISB Student Members Information
Ediuska Laurens, ISB Student Representative

Dear ISB Student Members,

I have the following reminders and updates that concern the ISB student members:

Reminders

1. For those of you attending **NACOB 2008**, please remember to participate in the **ISB Student Grants Program on Wednesday August 6th from 6:30 – 8:00 pm at the Rackham Assembly Hall**. The purpose of this event is to provide you with valuable information about the ISB Student Grants, with an emphasis in the International Travel Grant, which allow student members to travel abroad to experience science in other cultures. At the same time you will have the opportunity to meet representatives from potential hosting laboratories from around the world, allowing you to match your research interests with those investigators who are willing to serve as mentors at the hosting laboratories. We have gathered representatives from **North America, South America, Europe, Australia, and Africa**. Another highlight of this program is the presentation on biomechanics in Central America by **EL SALVADOR MISS WORLD CONTESTANT 2004**. In summary, you will have **FREE FOOD**, the chance to get **FREE MONEY** to learn biomechanics in different parts of the world, and learn about Biomechanics in Central America.
2. I would like to remind the students who were recipients of the 2007 ISB student grants, which includes the International Travel Grant, Congress Travel Grant, and the Dissertation Grant, to submit their award reports as soon as possible. This report is part of the grant requirements, and it should be emailed to our newsletter editor (Karen Søgaaard) for publishing.

Updates

1. **The ISB MENTORING PROGRAMS are NOW ACCESSIBLE on the ISB website!** This is something I have been working on for a long time, so I am very excited that this is finally available to all of you. There are two types of mentoring programs:
 - a. **Researcher-Student Mentoring Program:** here young biomechanists could be linked to established biomechanics investigators willing to give advice and serve as mentors in the biomechanics field. We already have most of the ISB council members on board, and as you may know, these are world-renowned biomechanists that can potentially provide you with the BEST guidance you can receive in this field!
 - b. **Student-Student Mentoring Program:** here students that are awarded the ISB International Travel Grant could be linked to other ISB students who live in the city or country where the awarded student is going. This type of mentoring will ease the students' transition to another country and culture, by having a fellow ISB student who they can relate to and provide them with advice about what to expect in that particular part of the world. For the latter, I will definitely need student volunteers who could serve as mentors. So this is your chance to get involved in your society!

Therefore, if you are looking for a mentor or are interested in becoming a student mentor and serve as Biomechanics Ambassadors, please check out the **Mentoring Program on the ISB website!**

I would also like to encourage our ISB members to get involved and participate as Researcher-Student mentors so as to help shape and further educate our future biomechanists.

2. These are some of the activities that I have been organizing at the student level worldwide as the ISB student rep. :
 - a. In coordination with Dr. Carmen Müller-Karger from the Simon Bolivar University (Caracas-Venezuela), we were able to advertise ISB and its efforts in the Latin America Community by send-

ing pamphlets to the IV Latin America Congress of Biomedical Engineering (CLAIB) 2007 <http://claib2007.eventos.usb.ve/index.php?lang=sp> which was held in Margarita, Venezuela in the month of September. This congress had 3 official languages (Spanish, English and French) and the participation of 20 countries including Spain, France, Mexico, Japan, USA, and United Kingdom. Therefore, we were able to reach a large population of students and scientists in this part of the world.

- b. In an effort to increase the number of ISB student members from economically developing countries (EDC), I focused on South America to provide information about ISB and the benefits that this society offers to students. Before I started on this mission, only two students from South America were members of ISB: a student from Brazil (Felipe Carpes) and a student from Venezuela (myself). Now the new panorama looks like this: **2 students from Venezuela, 7 students from Colombia, and 6 students from Brazil!** For a better representation of this continent.
- c. Workshops in different areas of biomechanics will be taught this year 2008 in Venezuela and Brazil. This initiative will facilitate students from these regions to learn biomechanics topics in which they are limited in knowledge and training.
- d. Presentation at the Simon Bolivar University (Venezuela) this past January 2008 in order to inform students about the International Society of Biomechanics and to encourage and facilitate their involvement in the global biomechanics activities made available through ISB.

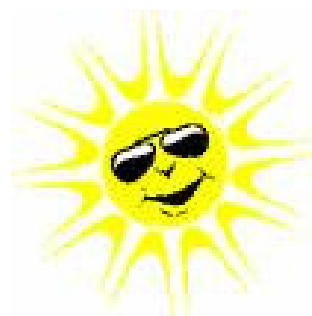
Well my fellow student members, this is all I have for now. Please, feel free to contact me if you have any suggestions or questions about the above information, or if you would like to suggest any activities for ISB to initiate that you think it is needed and it would highly benefit the ISB student members.

Best wishes,
Ediuska Laurens
ISB Student Rep.
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Editors note

Dear readers. It is now (at least on the northern hemisphere) summer and for many biomechanics colleagues this, apart from vacation, also means conference time. The ISB shoulder group is meeting in Bologna, Italy and the ISB council is having their next meeting during the upcoming NACOB conference in Ann Arbor, Michigan. So now is the time to contact one of the council members, if you have issues you want to bring into their focus. In this ISB Newsletter you can appreciate that biomechanics is a truly international discipline; read the personal report about applied biomechanics in Nepal and an overview of research activities in Croatia. Enjoy the initiatives of the very active student representative in

the council and the presidents thoughts of what really matters in research. If you have comments or experiences that you want to share with your fellow biomechanists, don't hesitate to send a mail to ksogaard@health.sdu.dk. Have a nice summer!



***Karen Sogaard
Newsletter Editor***

A short overview of biomechanical research in Croatia

In the following three separate texts are provided, from three different research centers in Croatia, concerning part of the research activities related to biomechanics



Faculty of Kinesiology, University of Zagreb, Croatia

Vladimir Medved, Mario Kasović

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Faculty of Kinesiology, University of Zagreb, is the site where research and teaching are being pursued in the inter- and multi-disciplinary field of human movement studies. Several decades of tradition in university-level teaching the kinesiological biomechanics at both under- and post-graduate levels accompanied by mostly domestic funded research have resulted today in a modern equipped Biomechanics Laboratory facility (1). Located within the Faculty's Sport Diagnostic Centre it houses an ELITE Clinic/Biomech 2002 TVC 100Hz 8-camera kinematic measurement system by the firm Bioengineering Technology & Systems (B.T.S.), Milan, Italy, including a B.T.S. Electromyograph TELEMG 8, an 8-channel surface EMG telemetric unit (courtesy of the Zagreb-based firm Polimedika, Director Janos Szekeres) and force plate type Kistler, Switzerland (given to our disposal by courtesy of Professor Emeritus Osman Muftić of the Zagreb Faculty of Mechanical Engineering and Naval Architecture).

This experimental facility enables a number of investigations, educational and - what is recently particularly the case - diagnostic applications to be pursued. Our current scientific research project financed by the Ministry of Science, Education and Sports of the Republic of Croatia is called: „Automated motion capture and expert evaluation in the study of locomotion“. A research team of engineers, kinesiologists and medical doctors addresses both pathological and healthy locomotion problems. The project is led by Vladimir Medved, PhD, Professor of Biomechanics, while laboratory work is handled and organized by Mario Kasović, MSc in kinesiology, a Scientific Novice. The project is a part of a broader research programme called: „Minimally invasive measurements and technologies in biomedicine“ led by Professor Stanko Tonković of the Zagreb Faculty of Electrical Engineering and Computing (FER), a collaborating institution.

Among numerous teaching activities provided a few most recent ones may be mentioned. The new undergraduate elective course: „Neuromuscular biomechanical diagnostics“ is to be taught in this spring semester of 2007/2008, as well as the course „Biomechanical analysis“ led by Mladen Mejovšek, PhD, Associate Professor of Biomechanics (whose research and, consequently, teaching are directed exclusively to

sports locomotion), both courses being offered to future kinesiologists. Further, since 2000, at the Faculty of Electrical Engineering and Computing an elective course: „Multisensor systems and locomotion“ is being taught (2), while since 2005 at the Medical School - Medical Studies in English an elective subject designed in collaboration with Professor Emeritus Marko Pećina, MD, PhD, Croatian Academy of Sciences and Arts (HAZU) Full Member, is being taught: „Measurement and analysis of human locomotion“ (3, 4). In addition, the book by Vladimir Medved (5): "Measurement of Human Locomotion", CRC Press, Boca Raton, FL, 2001. is relevant to the subject. The review of the book has appeared in Journal of Biomechanics, January 2003, 36(1), 147-148.




Figure 1. A preparation for the measurement of table tennis stroke

Good networking of the Laboratory within the Zagreb region enables a number of different research projects, theses, and goal-directed experiments to be realized. We either collaborate or have begun the collaboration with a couple of research and higher education institutions like the Zagreb Ruđer Bošković Institute, an eminent Croatian research institution (Associate Professor Branka Medved-Rogina; signal processing), Faculty of Sports, University of Ljubljana, Slovenia (Professor Miran Kondrič; table tennis research), and Institute of Sport Sciences, University of Vienna, Austria (Professor Arnold Baca; study of complex movements). Our efforts during the last period are directed particularly to the standardization of new medical diagnostic methods, gait analysis in the first place, to be applied in health care, for which there is a real need in the 1-million populated Zagreb region. We have therefore recently initiated the collaboration with a couple of health institutions and clinics to fulfill this task.

Further information: www.kif.hr/predmet/bio/lab_bio.

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Peharec Polyclinic for Physical Medicine and Rehabilitation, Pula, Croatia

Stanislav Peharec, Petar Bačić

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Laboratory for the biomechanical research as a part of the Polyclinic Peharec is mainly dedicated to follow our patients through a variety of rehabilitation processes. For that purpose we have developed testing protocols that covers most of our needs. Due to our involvement in sport we also offer a lot of functional testing for the trained athletes. Our latest research is focused on the examination of the functional status in patients with low back pain and patients with the posture disorders. In the field of sport performance our subjects are professional athletes in track and field, handball, football and basketball at the most. In addition, our subjects are also average people with common problems of locomotion apparatus (Figure 2).



Figure 2. Investigation of biodynamics parameters during sprint start

We are able to cover most of laboratory biomechanical analysis using number of equipment that we own. Thanks to our collaboration with manufacturer of biomechanical systems BTS from Italy, our laboratory is equipped with optoelectric system at 250 Hz working frequency and pair of Kistler force plates. Further, we own a 16 channels SEMG wireless device from the same manufacturer. In the field of pressure distribution/pedobarography our partner is Loran-engineering, also from Italy. We are also equipped with Biodex isokinetic system that we use in the diagnostic/therapy. Concerning human resources, beside our medical staff not directly involved in laboratory work, an engineer is especially dedicated in developing, execution and elaboration of testing protocols.

Our results strongly suggest that biomechanics allows rather informative diagnostics tools for the patient rehabilitation and helpful guidance in a sport performance as well. For that purpose we work closely with the number of coaches during preparation, execution and results analyses of the measurements. Our current work is a natural continuation of a 20 year of scientific approach in a field of physical therapy with special emphasis on sport. Beside the collaboration with BTS and Loran-engineering manufacturers we have strong collaboration with the following institutions in Croatia:

- School of medicine, University of Rijeka, Croatia
- Faculty for electrical engineering and computing, University of Zagreb, Croatia
- Faculty of Sport, University of Ljubljana, Slovenia.

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At the Department of electronic systems and information processing a substantial part of the research activities is in the field of electronic instrumentation and biomedical engineering and it is mainly aimed to the development of new noninvasive measurement techniques. Bioimpedance measurement and modeling are performed and applied to increase the accuracy and reliability of determination of the length of the root canal in endodontic treatment; to improve early and noninvasive detection of lower leg ischaemic states apparition and to monitor and model the volume of tissue successfully treated (porated) during electrochemotherapy. Research has been performed on a novel pulsed eddy current method for non-destructive testing of various conductive structures. Investigation in contactless measurement of bioimpedance has started.

Biomechanical testing in evaluation of sports equipment and myoelectric signal analysis of muscle fatigue in sports training and kinesiological rehabilitation has been performed. The 3D reconstruction system with convenient calibration cage, automatic calibration procedure and protocols for calculation of kinetic parameters was developed for research of human movement. In addition, user friendly camera calibration methods using 2D calibration pattern or single wand of known lengths(s) are developed as well. On the track of developing 3D structured light scanner aimed at scanning body parts, various projection patterns are investigated too (Figure 3).

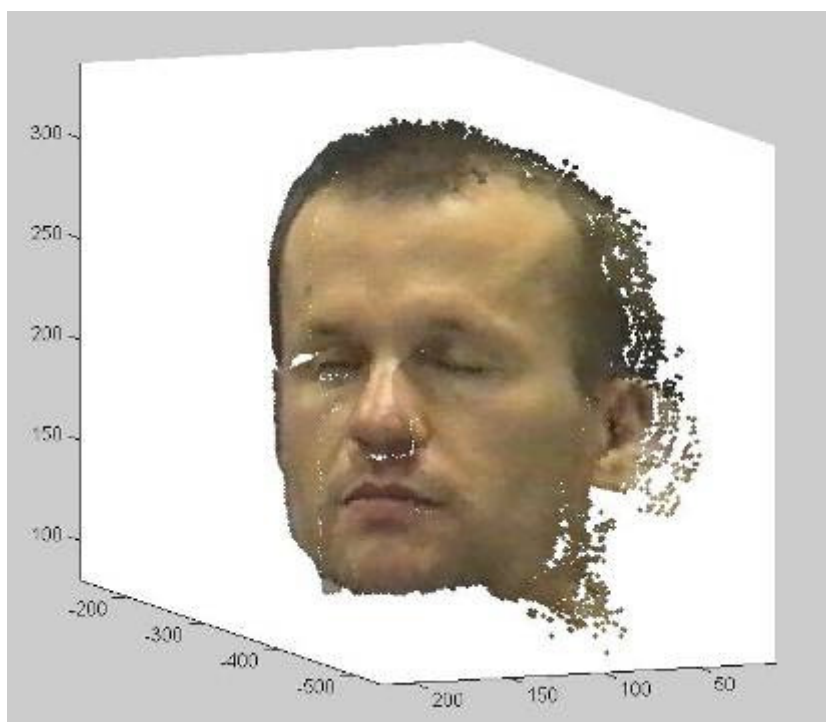


Figure 3. 3D cloud of points' raw data during facial reconstruction

The minimally obtrusive wearable instrumentation in physiological monitoring has been investigated. The selectivity and sensitivity of transesophageal pacing has been analyzed and time-frequency analysis has been applied in development of ECG segmentation algorithms. Health technology assessment, standardization and management of the medical equipment in the scope of the health reform have been considered. Clinical engineering educational programs and international collaboration in biomedical engineering education and training have been co-ordinated. Besides, strong collaboration links have been set up with number of other research centers in Croatia, such as Peharec polyclinic, Pula and Faculty of kinesiology, University of Zagreb.

Obituary: Yuli Toshev

Late April a sad message with the headline « ADIEU! GOODBYE!» landed in the mailbox of the many biomechanics colleagues, who had been in contact with Yuli during the last years:

*« To all the friends and colleagues of Professor Yuli Toshev,
At 22.04.2008, after one valuable, creative and passionate life, Professor Yuli Toshev passed away. Let us remember forever this remarkable and cosmopolitan person. From his family »*

Brian Davis wrote on Biomech L :

On behalf of the International Society of Biomechanics I would like to express my condolences to the family and friends of Prof. Yuli Toshev.

Prof. Toshev was a man who epitomized the philosophy of the ISB: maintain the highest academic standards, promote biomechanics at the international level, and serve the profession that you represent. He obtained his Master of Sciences degree in Computer Science in Bulgaria (1963), his PhD in 1975, and a DSc degree in Biomechanics in 1995. At the time of his death, he was a Full Professor in Biomechanics and/or Robotics in both France and Bulgaria.

Prof. Toshev was a strong believer in international travel, and spent time in many different labs including University of Paris-South, Massachusetts Institute of Technology (MIT), Penn State University, National Institute of Applied Sciences, Rennes, Université Catholique de Louvain, Belgium, University of Cardiff, Wales and University of Reims, France. Besides working with colleagues at these institutions, Prof Toshev was a frequent attendee at ISB Congresses.



Towards the end of his life, Prof. Toshev devoted considerable time to the creation of a new journal, "Series on Biomechanics" (<http://www.biomechanics-bg.org/>). He posted an announcement to this effect on Biomch-L on Feb 2nd this year. I sent him a short email to congratulate him on his efforts, and his response was to thank the ISB for supporting this journal. His final words to me were, "Best wishes to ISB, Yuli".

With this in mind, I'd like to encourage members of the biomechanics community to visit his journal's website and, if appropriate, consider submitting a paper for publication. Prof. Toshev was a leading biomechanist who promoted our profession with enthusiasm and creativity: he will be sorely missed.

Brian L. Davis, Ph.D,
ISB Past-President

Student travel grant report by Jaebum Park



I would like to give my appreciation to the ISB for giving me an opportunity to present my research project as well as supporting the travel fund. I had a great experience to communicating with other graduate students and outstanding researchers who have studied the diverse aspects of the biomechanics. Also, I could have a chance to visit beautiful ancient places, museums, and the night market (the most exciting experience) in Taipei during the conference.

The conference covered a diverse range of biomechanics topics including the occupational, computational and physiological parts of the discipline. The keynote lectures specifically provided me glimpses of the most updated field in biomechanics and what the future of biomechanics will be.

It has been three years since I started my Ph.D study, and I have attended 2-3 conferences each year. Every time I joined a conference, it has given me a chance to reflect on my past research and make a plan for the future researches.

During my first two years working with Dr. Jae Shim, my research has been focused on the study of the prehension synergies of human multi-digit force production task. In particular, I have built my research interest in the central nervous system (CNS) control strategies to solve the motor redundancy problem. When I was a master's student, my research area was specialized in the sports biomechanics. However, I have recognized that it is very hard to interpret the results without understanding the human motor control schemes. Thus, the part of my research interests for the doctoral study has been more about bridging gap between the human motor control and biomechanics. The project I presented in the conference was "Bridging a gap between human motor control and robotic control: solution of a redundant motor task with sub-task conflict". In this study a multi-finger manipulation task was employed with a mechanical redundancy and investigated how the human CNS solves the problem of mechanical redundancy during multi-digit manipulation.

From other presentations and keynote lectures, I gathered ideas that will guide my future research. I recognized that the way of interaction with the external world is an important clue to understand human movement. On the other hand, in order to explain the control strategies with the world, human interaction within the external world must also be considered as if it poses a number of constraints within human motor control.

I thank the ISB again for giving me this opportunity, which will make it possible for my research experience to be richer. Every time I look at the yellow-black colored ISB bag from the conference, I'll think of the ISB experience with affection and gratitude.

Sincerely,

Jaebum Park
University of Maryland, College Park
USA



2009 International Society of Biomechanics Conference

Welcome to the XXII Congress of the International Society of Biomechanics to be held in Cape Town, South Africa from 5th to 9th July 2009

The ISB 2009 congress will accept papers in all areas of biomechanics for oral or poster presentation. We especially solicit papers in the following areas of interest:

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Deadline: 15 February 2009

Visit the webpage:

<http://www.isb2009.org/index.htm>



ANNOUNCEMENT *2009 Nike Award for Athletic Footwear Research*****

For the third time, Nike will sponsor a US\$25,000 award to encourage research on athletic footwear. The topic for the competition will be the role of athletic footwear in the prevention of sport injuries, either acute or chronic. The prize will be awarded at the Ninth Footwear Biomechanics Symposium in the summer of 2009. The prize will be awarded competitively on the scientific merit of the work*. A panel of experts from the field will be assembled to determine the winner of the award. Full papers containing original material, not previously submitted for publication, must be received at the following addresses no later than May 1, 2009:

Additional details can be found on the Footwear Biomechanics Group webpage (www.footwearbiomechanics.org).



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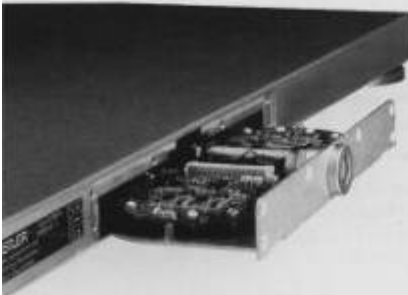
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