

BME NEWS

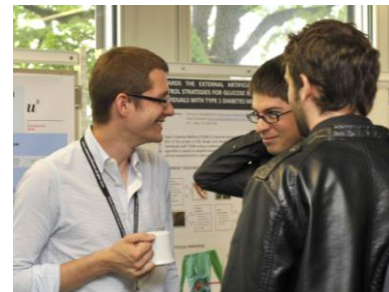
Biomedical Engineering Day 2010

At the BME Day, the Biomedical Engineering community of the University of Bern opens its doors to university members, professionals, and students. This year's participants included Biomedical Engineering faculty and students (both graduate and undergraduate), other students from the University community, corporate members, and various guest speakers from within the profession. The BME Day aims at offering networking opportunities and allowing undergraduates and graduates to explore career options in the field.



The coffee and the lunch breaks gave us a wonderful opportunity to visit the posters and medical company booths displaying their products ranging from diagnostic instruments to medical implants.

15 biomedical engineering undergraduates and graduates presented posters focusing on the research they had conducted during their master thesis and doctoral work. In addition, the ARTORG research groups impressed the event's visitors with stunning demonstrations from the fields of artificial hearing aids, computer-aided surgery, diabetes technology, gerontology and rehabilitation, and ophthalmic technology. Faculty members judged the posters to choose the Co-Me poster award winner.



The Second Annual Biomedical Engineering Day took place on Friday, June 4, 2010 in the Auditorium Rossi at the University Hospital (Inselspital) in Bern. The BME Day kicked off with a welcome note by Prof. Dr. Lutz Nolte. Eleven companies from Germany and Switzerland presented themselves to an audience of approximately 230 participants.

The Keynote lecture 'Polymers in cardiovascular surgery' by Prof. Dr. med. Thierry Carrel from the University Hospital Bern was the highlight of the day. In his stimulating lecture he gave a comprehensive overview of the great

Issue 3, December 2010

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Calendar



Check out the IEEE web page for information about their guest lecture series. www.biomedeng.org



Visit the SSBE website for current activities and www.ssbe.ch

Get connected



"Those were good times,
the years in Bern."

Albert Einstein

Biomedical Engineering Day 2010 ctd.

challenges for biomedical engineering in cardiovascular surgery and the application of plastics in the cardiovascular sector.

The much awaited Medical Cluster Award ceremony was moderated by Dr. Stephen Ferguson.



Andreas Wüthrich was granted the award for the best master thesis "Osteointegration of Model Implants with Anti-bacterial Surfaces" and Dr. Flurin Pfiffner for the best Ph.D. thesis "Optimizing the Benefit

of Bone Anchored Hearing Aids". Dr. Rubino Mordasini, president of the Medical Cluster, presented the awards to the winners.



The Co-Me Poster Award was given to V. Oliva, B. Bell, S. Stankowsky, M. Caversaccio, C. Stieger, S. Weber in recognition of the outstanding poster presentation "Advanced Surgical Instrumentation for ORL and CMF Applications".

The BME Day Lottery

prize – an iPad sponsored by Ypsomed AG, was given to a lucky master student. The Day closed with a well deserved apero followed by the BME club's annual general assembly.

The Third Annual Biomedical Engineering Day will take place on May 13, 2011. The program will encompass a number of events, presentations from guest speakers, company booths and both graduate and undergraduate poster sessions. Furthermore, the ARTORG researchers will once more impress with their demonstrations. If you are interested in being an integral part of the next BME Day, please contact us at info@bmeclub.ch.

*Text: Prabhitha Urwyler
Photos: Aisha Spring*

One Year Down, One More to Go!

On July 2, 2010, we – the first year students - decided to celebrate our success with a barbecue. We could not believe it, a year had passed since we had started one of the biggest adventures in our lives. For all of us this experience is quite a challenge, we had decided to step into an unknown world without being aware of what was going to happen next. Suddenly medical doctors had to calculate the forces of a static system and engineers had to memorize an enzymatic process. We were consolidating; we are fusing two fields - being part of modern history.

On this warm summer afternoon, we were sitting next to a person who had been a complete stranger a few months ago and now was a good friend. Sharing laughter, telling a funny experience, enjoying our grilled

goodies, and drinking cold beer, was the best way to celebrate a mostly successful year. Some faces had disappeared by this time, others, however, had decided and affirmed that this was the path to follow. One year down, just one more to go.

Heaps of chips and gummy bears in front of us, we spontaneously watched the World Cup quarter final Ghana - Uruguay after the sun had set, with more beer and emotional ups and downs for both the Ghanaian and the Uruguayan fans among us. Sure victory was turned into defeat for Ghana and Uruguay was sent on to the World Cup semi-final.

Thanks to the BME Club who gave us the perfect setup for

the barbecue evening, we were very grateful for the drink and snacks. A big thank you to the Master study director, the study coordination, and the workshop team, too, who all supported us in making such a convivial evening possible.

We are prepared for the new challenges to come, be it in barbecuing or BMEing.

*Text: Rosablanca Paez
Photo: Tom DeBruyne*



One For The Rookies



If you're craving for the walk-in library of Medtech Companies from A&D Medical to Zühlke Engineering AG, Medica in Düsseldorf surely attempts not only to resolve that for you, but goes on to saturate your hunger as well. With 17 halls to fill, ranging from half a hectare to 25 hectares each, the total area to cover on foot is a little over 300 hectares, without the walkalators in between. And if that number is not big enough, try your thoughts around 4,300 exhibitors under your nose, bringing their prototypes ranging from as small as cochlear implants to as large as 3-D endoscopy simulation consoles.

Held for 4 days every year for more than 40 years and currently receiving 130,000+ visitors annually, "MEDICA- World Forum for Medicine" in Messe Düsseldorf has truly become a must-see trade fair for any typical healthcare professional, biomedical engineer, science student, and patient as well. Not only has Medica attracted prospective clients and researchers, but as a paralleled exhibit, COMPAMED has claimed two halls in the Messe, hosting more than 500 suppliers & production companies to suit the inquiries of biomedical manufacturers as well.

Being a rookie to the biomedical field, a view of the available and marketable medical toys becomes compulsory to achieve a realistic grasp of the trends in

medicine. Knowing who is doing what could push the inspiration further to pave the way to the innovative thinking of biomedical engineering. From Brazil to Hong Kong, Russia to the United States, Dubai to Japan, and of course all of Europe, the cluster of companies big and small, opens the doors to the aspiring biomedical engineering for career opportunities in the field of choice, anywhere around the world.



This year, as a first for the BME Club, a short trip to this annual trade fair was organized to give a glimpse of the real world outside of universities a.k.a. "the industry". With about 30 students and members, in a sturdy bus with a built-in WC, the adventure began at Wankdorf, Bern at 7 o'clock on the crispy early winter morning of November 19, 2010. What had been expected to be a 6hour drive extended to a 9hour ride, with multiple stops in between. Fortunately, the journey had been safe all the way, and with 9hours to kill, strangers were soon companions



and sleepless nights (perhaps from too much studying) were easily compensated. Upon arriving at the Messe at 4:30pm, the group paid their courtesy visits to the Swiss Pavillion and Cendres+Métaux,



thereafter an hour was left for a short round through the CompaMed Trade Fair. Although not nearly enough time to see and After closing hours, our Eurobus set the search for the Jugendherberge in Ratingen, about 20 minutes away from Düsseldorf. About 700meters from the main road, the hostel was seated in a quiet district set-apart from the town-center. And after settling ourselves into rooms and roommates, dinner became the next goal. The group soon divided into the restless and the hungry, the restless going off to seek an evening in Düsseldorf and the hungry spending the rest of the evening with the memorable crew of 'In der Crone' the Hungarian Restaurant in Ratingen. With its bloopers and long waits, the evening was surely one to remember. Most being first time visitors to Düsseldorf and Ratingen, the idea of departing again the following morning brought a mixture of feelings of excitement and resolve; excitement for another day to explore the halls of Medica, and resolve for another long ride to get home.

One For The Rookies, continued

talk to all the exhibitors, our group of 30 managed to let their engineering senses lead them and collected all necessary pamphlets and contacts for further inspection later.



For our final morning, setting out early enough to be one of the firsts to enter the trade fair at 10am,



our group of 30 divided itself into groups with similar interests, attacking the exhibition by order of priority. With halls dedicated only to electro-medicine and operating

equipment, the image-guided therapy freaks could soak their senses into the virtual worlds of the surgical room and 4d-ultrasound of an unborn baby (with mothers-to-be on site, to demonstrate). The musculoskeletal understudies then flocked to the physiotherapy and orthopaedics halls, finding themselves testing fitness equipment more than touching titanium implants, but running across disc replacements and the spinal mouse as well. And of course the implant developers were seen tinkering with current diagnostic & treatment mini-machines for diabetes and cardiology, with plans of improving them perhaps?



Soon though, the priorities dissolved to mere curiosity and everyone found themselves walking aimlessly between booths, meeting greeting and collecting samples and booklets to take home.

Though spending only 4 hours in this massive exhibition, we all came out overwhelmed with the gamut of inventions that are running the present medical world. Sure there seemed hundreds that appeared to be doing the same thing, but they were all running successfully on their creative thinking, whether it be in en-

gineering the product or just selling it. It was then impressive to witness the versatility of technology in medicine, offering seemingly low-tech solutions to overall health maintenance and obviously high-tech solutions to disease treatment. As students of this continuously growing field, we all found ourselves wondering who we could work for or work with in this scale of biomedical corporations ...

On the ride back, after a relatively short morning at the Messe, the bustle we celebrated with on the way to Düsseldorf had nevertheless died down to a more serious and quiet tone. With warnings of ghost-riders on the highway and the full-moon to guide us all the way back home, our thoughts lingered away from "the industry" and back to our normal lives. We were still hungry for more information—but one could only eat so much in one sitting. Perhaps in a few months we would find ourselves in another vehicle journeying to another trade-fair, hopefully with less travel-time to eat up our fair-time and opportunities to ingest smaller portions a day as well.



Text: Cherry Malonzo

Photos: Tom DeBruyne

CTI Medtech Event, 31 August 2010:

Casino Bern at its limits, Medtech Switzerland at its best

This year, the Innovation Promotion Agency CTI invited the representatives of the Swiss Medtech Industry for the eighth time to the CTI Medtech Event. Always on the spot, many BME Club members attended this event, where science meets the industry for an interesting and intense program. Over 400 people attended impressively crowded CTI MedTech event at the Kultur Casino Bern.

After welcoming words from the president, Walter Steinlin and the head of the CTI, Klara Seikanina, Lutz Nolte, the head of the CTI MedTech reviewed last year's the morning session, the three nominees for the Medtech Award 2010 presented their stunning projects "Magnetic Ablation Escorting for Treatment of Atrial Fibrillation - MAESTRO_AF", a collaborative effort between the EPFL and Maestro-Heart SA; "Intelligent bed system for the prevention and therapy of decubitus ulcerus", a collaborative effort between the EMPA and compliant concept, and "Artificial muscles to control the flow of hollow organs", a collaboration between the CHUV and Nanopowers SA. Urs Althaus then explained the key points for CTI Medtech start-ups. In the afternoon Erwin

Locher, president of the export platform Medtech Switzerland, discussed together with Daniel Küng, CEO Osec, Patrizia Fischer, CEO Pearltec AG, and Richard Fritschi, CEO Ypsomed about the export activities towards the US, Japan, India, and China as part of

mobile person changes position in bed. This new approach represents a great advantage for the patient since it encourages mobility and activity. Additionally, it is a welcome assistance to the health-care personnel, by enormously reducing the physical effort required to turn patients.



For the first time a poster award was also granted: the team of Stefan Tuchschmidt from VirtaMed, and Matthias Harder from the ETH Zurich won the prize for the poster presentation of their project

"Computer-based surgical simulation of knee arthroscopy".

Medtech Switzerland.

The Swiss Medtech Award 2010, a *quarzte stone from Vals and a cheque of CHF 10'000* was granted to compliant concept, a spin-off from the EMPA and the ETH Zurich. Andrin Maggi from compliant concept and Michael Sauter from the EMPA were very honored to receive the award. The new nursing bed contains a special slatted frame, made of "intelligent" materials, and a new mattress which, in combination, ensure that the patient does not remain motionless in the same position for too long, but is gently and firmly moved. The special construction imitates the way that a healthy,

Besides the official program, enough time was provided during lunch and coffee breaks for visiting the poster presentations of past and present CTI Medtech projects, for networking and establishing new contacts. Participants were also heard discussing ideas and collaborations that may lead to successful future project, thereby linking scientific knowledge with industrial know-how towards clinical applications.

Text: Lukas Bösch and Dobrila Nesic

Welcome New Students!

On September 29th, the BME Club organized a welcome apero, typically Swiss, for the first semester students of the Biomedical Engineering program. The master course gets more and more popular, this year drawing 80 students from around the world to Bern. About 50 of them followed up the invitation to the apero. Pra



bitha Urwyler, representing the BME Club, welcomed the students and introduced them to the activities organized by the club. The

students took the opportunity not only to meet their fellow students, but also to talk to some of their lecturers. The conversations revealed the students' various backgrounds, including all kinds of technical fields as well as economic and medical education. Some of the most burning questions of the first week of studies could be answered by professor Nolte, professor Koch and the study coordinators.

Also thanks to a rich buffet the welcome apero was very well received and will be repeated next year.

*Text: Christoph Reutlinger
Photos: Lukas Bösch*



In the OR with daVinci

Ever wanted to be a heart surgeon and test the latest in surgical robotics? Missed your chance? At the end of the summer semester 2010, the last lecture of the advanced course "Medical Robotics" did not take place in the usual lecture hall but rather in the modern INO OR 10 of the Inselspital on a Friday afternoon.

Our host to this visit was Uwe Kloppsch, the master of the *daVinci*, and responsible for OR technology in the INO OR.

The *daVinci* system is a so-called surgical tele-manipulator. It allows surgeons to remotely operate on a patient by sitting in a chair and operating two joysticks and viewing the scene through a stereo video screen. Although being a robot, *daVinci* does not operate autonomously. Every move the robot makes is initiated by a similar movement of the operator. But the robot removes tremor and scales the movements. Today, the robot is being used mainly for

complex surgeries on the heart but also for urologic procedures.

Besides having a chance to operate the system and experience the feel of a surgeon, everyone enjoyed the dense and professional atmosphere of a modern OR.

The visit also helped the students to understand the concepts of surgical robots, their application as well as their limitations.

After such a successful and impressive visit, chances are high that *daVinci* will come back to the BME program next spring.

Text and Photo: Stefan Weber

BME NEWS

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