


CMBEC 29 CCGB

Final Program

June 1-3, 2006

Empire Landmark Hotel & Convention Centre, Vancouver, B.C.

Wednesday, 31 May 2006		
1830	Delegates arrive – registration desk opens	Hotel Lobby
Day 1 Thursday, 1 June 2006		
0730	Registration and Continental Breakfast	Crystal Foyer
0800	Conference Opening Welcome Delegates Bill Gentles, CMBES President Anthony Chan and Ken Yip, CMBEC29 Chairs	Crystal Ballroom
0815	Keynote Address <i>sponsored by Annual Reviews</i>  <p>Jim McEwen, PhD, PEng, CCE Adjunct Professor in the Departments of Orthopaedics and Electrical and Computer Engineering at UBC, and in the School of Engineering Science at Simon Fraser University</p> <p>The Future of Biomedical Engineering In Canada: The Child is the Father of the Man The English poet William Wordsworth said in 1802, "The child is the father of the man." So it is with biomedical engineering in Canada - to help us understand what the future may hold, we may benefit from examining some of the activities, trends, principles and accomplishments that have brought us to the where we are today. In this keynote presentation, Jim McEwen will identify some significant trends and challenges for the consideration of those interested in the future of biomedical engineering in Canada, from the perspectives of industry, research, education and healthcare delivery organizations.</p>	Crystal Ballroom
1200	Exhibits to open at noon in the Coal Harbour Room <i>Buffet lunch sponsored by Maquet-Dynamed</i>	
THREE CONCURRENT STREAMS OPEN TO ALL DELEGATES		
	Clinical Engineering (Crystal Ballroom 2)	Medical Devices (Pavilion)
	Scientific Sessions (Crystal Ballroom 1)	

Clinical Engineering**Crystal Ballroom 2****0915****New Medical Device Technologies (CE-1)**Session Chair

Doug King, MEng, PEng, Biomedical Engineering
Providence Healthcare, Vancouver, BC

Building a clinical hyperbaric chamber: The role of biomedical engineering

Author: Driedger, Daniel

Co-author: McConnell, Gord

Biomedical Engineering Department, Vancouver General Hospital

Fast screening system for deep vein thrombosis

Author: Guerrero, Julian

Co-authors: Salcudean, S.E. (Tim); McEwen, James A.; Masri, Bassam A.;
Nicolaou, Savvas

Department of Electrical and Computer Engineering, University of British Columbia

Development and initial evaluation of an internal tourniquet for minimally invasive orthopaedic surgery

Author: McEwen, James

Co-authors: Day, Brian; Jameson, Michael; Upward, Allan; Noble, Graham

Western Clinical Engineering Ltd, University of British Columbia

Lift devices to reduce MSI among home support workers in BC - A community intervention

Author: Paris, Nancy J.

Co-authors: Heacock, H. J.; Watzke J. R.; Frederking S. A.; Keane B.; Janzen, E.;
Kanigan, R. W.; Bellaire, T.; Wilson, C.

Health Technology Research Group, British Columbia Institute of Technology

1030**RF Communication in Healthcare (CE-2)**Session Chair

Martin Poulin, MEng, PEng, Biomedical Engineering
VIHA, Victoria, BC

A mobile phone - based telemonitoring system for chronic disease management

Author: Cafazzo, Joseph A.

Co-authors: Trudel M.; Igharas W.; Tallevi, K.; McLean, M.; Picton, P.; Lam, J.;
Sathianathan, A.; Rossos, P. G.; Logan, A.; Easty, A. C.

Medical Device Informatics Group, University Health Network

A radio frequency identification and monitoring system for improving pneumatic compression devices used in deep vein thrombosis prevention prophylaxis

Author: Cheung, William K. W.

Co-authors: McEwen, James A., Salcudean, S. E.

Department of Electrical & Computer Engineering, University of British Columbia

The feasibility of using bluetooth technology in a clinical environment

Author: MacLaggan, Tedford

Co-authors: Lovely, D. F., Maclsaac, D.

Department. of Electrical & Computer Engineering, University of New Brunswick

	<p><u>Development of an advanced tele-monitoring system for hospital-at-home therapies</u> Author: Cafazzo, Joseph A. Co-authors: Picton, P.; Lam, J.; McLean, M.; Igharas, W.; Rossos, P. G.; Leonard, K.; Chan, C. T.; Easty, A. C. <i>Medical Device Informatics Group, University Health Network</i></p> <p><u>Point of care engineering and technology</u> Author: Podaima, Blake W. Co-author: McLeod, Robert D. <i>Dept. of Electrical & Computer Engineering, University of Manitoba; Virtuistix Inc.</i></p> <p>1400 Wireless Technology Management in Hospitals (CE-3) <u>Session Chairs</u> Murray Greenwood, CBET, Trillium Health Centre Fernando Lebron, PEng, CCE, London Health Sciences</p> <p><u>Description</u> Two of our clinical engineering colleagues will discuss the challenges and different perspectives of implementing wireless technology policies at their representative hospitals. Discussion will be encouraged from the audience regarding perspectives from other clinical engineering groups across Canada.</p> <p>1545 Health Technology Assessment (CE-4) <u>Session Chair</u> Jennifer McGill, MEng, CCE Health Devices, ECRI</p> <p>Second speaker TBD</p> <p><u>Description</u> Attendees will acquire a better understanding of basic HTA, including its adoption as a methodology and its use as a service. You will become acquainted with the various steps in HTA and will be able to report and promote the information to the decision makers of your own organization. You will increase your awareness of HTA resources, services, and organisations and gain some practical tips on how to implement a Health Technology Assessment process in your organisation.</p>
	<p style="text-align: center;">Medical Devices Pavilion</p> <p>0915 Commercialization Planning (MD-1) <u>Presenter</u> Matthew Mintz Director, Technology Commercialization Office, BCIT</p> <p>The road from invention to commercially successful product has many known and hidden barriers. This session discusses the importance of conducting commercialization planning early on in the process and some of the major areas that need to be considered.</p> <p>1030 Market Research (MD-2) <u>Presenter</u> Rick Kroetsch</p>

	<p style="text-align: center;">Instructor BCIT School of Business</p> <p>Market research is an essential component of a successful medical device product. Market drivers for your product idea many not match up with clinical need and market research can help you make decisions that will significantly improve your chances of commercial success.</p> <p>1115 Medical Device Invention: Patenting Issues & Strategies (MD-3) <u>Presenter</u> Dan Polonenko Patent Agent Fasken Martineau DuMoulin LLP</p> <p>Intellectual property is necessary for protection of your idea for a medical device. Without it you will not have anything to license to a potential partner and you will not be able to prevent others from commercializing your idea. This session will provide a brief overview of the patenting process and what role patents play in the commercialization of your product idea.</p> <p>1630 From invention to useful product - the importance of design requirements (MD-4) <u>Presenter</u> Judy Findlay, MAsc, PEng Project Leader Health Technology Research Group, BCIT Past CEO, Pyng Medical Corp.</p> <p>The development of a new medical device follows a rigorous design process. An essential step in the design process involves the development of design requirements. This seminar describes the characteristics of effective design requirements and their importance in the medical device development process.</p>
<p>0915</p>	<p style="text-align: center;">Scientific Sessions Crystal Ballroom 1</p> <p>Imaging 1 (SC-1) <u>Session Chair:</u> Dr Robert Gander College of Engineering, University of Saskatchewan</p> <p><u>Low-noise design and testing methodology for an a-Si flat-panel medical x-ray imager</u> Author: Izadi, Hadi Co-authors: Ressler, D. T.; Karim, K. S. <i>School of Engineering Science, Simon Fraser University</i></p> <p><u>Low noise, high dynamic range pixel architecture in amorphous silicon technology for diagnostic medical imaging applications</u> Author: Sanaie-Fard, Golnaz Co-authors: Taghibakhsh, F.; Karim, K. S. <i>School of Engineering Science, Simon Fraser University</i></p> <p><u>A study of potentials of silicon thin film technology in new applications of computed</u></p>

	<p><u>tomography</u> Author: Taghibakhsh, Farhad Co-author: Karim, Karim S. <i>School of Engineering Science, Simon Fraser University</i></p> <p><u>Wavelength selective amorphous silicon photodiodes for biomedical applications</u> Author: Khodami, Ida Co-authors: Adachi, M. M.; Malhotra, M.; Karim K. S.; Kavanagh, K. L. <i>School of Engineering Science, Simon Fraser University</i></p>
1030	<p>Imaging 2 (SC-2) <u>Session Chair:</u> Dr Karim Karim School of Engineering Science, Simon Fraser University</p> <p><u>Preliminary study and mechanical support design of analyzer for diffraction enhanced imaging</u> Author: Alagarsamy, Nagarajan Co-authors: Chapman, L. Dean; Szyszkowski, Walerian; Zhong, Zhong; Parham, Christopher <i>Division of Biomedical Engineering, University of Saskatchewan</i></p> <p><u>Preliminary design of a control system for diffraction enhanced imaging</u> Author: Napa, Aravinda Kumar Co-authors: Zhong, Zhong; Chapman, L. Dean <i>Division of Biomedical Engineering, University of Saskatchewan</i></p> <p><u>Preliminary study on tilt error corrections for DEI and MIR</u> Author: Zhang, Honglin Co-authors: Parham C.; Zhong Z.; Gupta M.; Chapman, D. <i>Biomedical Engineering Division University of Saskatchewan</i></p> <p><u>Breast tomosynthesis with x-ray quantum counting systems</u> Author: Goldan, Amir H. Co-author: Karim, K. S. <i>School of Engineering Science, Simon Fraser University</i></p> <p><u>Patient positioning for radiotherapy treatment using 3D ultrasonic imaging</u> Author: Wang, Michael Co-author: Rohling, Robert <i>Department of Electrical & Computer Engineering, University of British Columbia</i></p> <p><u>Real-time Kalman-filtered strain imaging of the human prostates</u> Author: Wen, Xu Co-author: Salcudean, S. E. <i>Department of Electrical & Computer Engineering, University of British Columbia</i></p>
1400	<p>Image Processing (SC-3) <u>Session Chair:</u> Dr Dennis Lovely Electrical & Computer Engineering University of New Brunswick</p>

Fast computation for ultrasound vibro-elastography

Author: Wen, Xu

Co-authors: Salcudean S. E.; Zahiri-Azar, R.

Department of Electrical & Computer Engineering, University of British Columbia

Image synthesis of deformed tissue with application to ultrasound for prostate brachytherapy

Author: Goksel, Orcun

Co-Authors: Salcudean, Septimiu E., Rohling, Robert

Department of Electrical & Computer Engineering, University of British Columbia

A report on the extraction of artery and vein regions in laparoscopic images

Author: Akbari, Hamed

Co-authors: Kosugi, Yukio; Kojima, Kazuyuki

Department of Mechano-Micro Engineering Tokyo Institute of Technology

Data driven determination of global fMRI thresholds using regions of interest bridge voxels

Author: Alexiuk, Mark

Co-authors: Pizzi, Nick J., Pedrycz, Witold

Department of Electrical and Computer Engineering, University of Manitoba

An efficient cell analysis algorithm for fluorescently stained cell images

Author: Prasad, Brinda

Co-authors: Choi, Jong-Sook Iris; Badawy, Wael

Department of Electrical & Computer Engineering, University of Calgary

A study on implementation of outward aging and health-state monitoring system based on image processing

Author: Hwang, Kun Su

Co-author: Kil, Se Kee, Shen, Dong Fan, Min, Hong Ki, Lee, Eung Hyuk, Hong, Seung Hong

Department of Electronic Engineering, Inha University

1545

Modeling (SC-4)

Session Chair:

Dr Adrian Chan

Systems & Computer Engineering, Carleton University

Hidden markov multivariate autoregressive (HMM-MAR) modeling of dynamic muscle association patterns in reaching movements

Author: Chiang, Joyce

Co-author: Wang, Z. Jane; McKeown, Martin J.

Department of Electrical & Computer Engineering, University of British Columbia


Mathematical modeling of myocardium motion

Author: Kermani, Ahmad M.

Co-authors: Suleman, Afzal; Oshkai, Peter

Department of Mechanical Engineering, University of Victoria

	<p><u>Motor unit conduction velocity distribution estimation performance studied by simulation</u> Author: Jiang, Ning Co-authors: Parker, Philip A. Englehart, Kevin B., Gonzalez-Cueto, Jose A. <i>Institute of Biomedical Engineering, University of New Brunswick</i></p> <p><u>Modeling hierarchical levels of fluid flow in cortical bone: Integrating fluid flow simulation with Micro-CT</u> Author: Cooper, David M. L. Co-author: Goulet, Grant C., MacKay, Chris J.; Martinuzzi, Robert; Coombe, Dennis; Zernicke, Ronald F. <i>Faculty of Medicine, University of Calgary</i></p> <p><u>A mathematical model of glucose metabolism in humans emphasizing the role of incretins</u> Author: Norwich, Kenneth H. Co-author: Ohayon, Elan L.; D'Alessandro, Lisa M.; Brubaker, Patricia L. <i>Institute of Biomaterials & Biomedical Engineering, University of Toronto</i></p> <p><u>Prediction of Protein Sumoylation Sites Via Parallel Cascade Identification</u> Author: Green, J.R. Co-author: Dmochowski, G.M.; Golshani, A. <i>Department of Electrical & Computer Engineering, University of Carleton</i></p>
<p>1200</p>	<p>Poster Sessions (SP-1) False Creek 2</p> <p><u>Can women experience a greater range of loudness than men?</u> Author: Norwich, Kenneth H. Co-authors: Sagi, Elad; D'Alessandro, Lisa M. <i>Institute of Biomaterials & Biomedical Engineering, University of Toronto</i></p> <p><u>Haptics-enhanced soft-tissue interaction in neuro surgery simulation</u> Author: Ren, Jing Co-authors: Zhong, Hualiang; Patel, Rajini V., Peters, Terry M. <i>Imaging Lab, Robarts Research Institute</i></p> <p><u>Powell method with an elastic model for non-rigid registration</u> Author: Zhong, Hualiang Co-authors: Wang, An; Peters, Terry <i>Imaging Research Labs, Robarts Research Institute</i></p>
<p>1400</p>	<p>Biomedical Engineering Education Panel Discussion (ED-1&2) Pavilion</p> <p><u>Session Chair:</u> Hubert DeBruin, PhD McMaster University</p> <p><u>Description</u></p> <p>There is renewed interest in biomedical engineering education at universities and colleges across Canada. A number of new programs at diploma, undergraduate and graduate levels have been established or under preparation. This session provides an opportunity for educators and the industry to review the characteristics</p>

	and challenges of some of these programs and to explore opportunities for collaboration. Presentations will be followed by discussions	
1715	Opening Reception in the Exhibit Hall – <i>Sponsored by Annual Reviews</i>	
1930	Student Party – open to all student delegates	Location TBD
Day 2	Friday, 2 June 2006	
0730	Registration and Continental Breakfast <i>Breakfast sponsored by Tyco Healthcare</i>	Crystal Foyer
0815	Keynote Address	Crystal Ballroom
	 <p>Dr. Max Cynader, PhD, FRSC Director, Brain Research Centre University of British Columbia Canada Research Chair in Brain Development</p> <p>Neurotechnology - using advances in understanding brain mechanisms to achieve practical outcomes.</p> <p>Dr. Cynader's talk will illustrate how emerging understanding of brain function and biology can lead to new biomedical technologies.</p>	
0915	Clinical Engineering Benchmarking/Management (CE-5)	Crystal Ballroom 2
	<p><u>Session Chair</u> Bill Gentles, PhD, PEng, CCE BT Medical Technology, Toronto, ON</p> <p><u>A staffing level survey of biomedical engineering departments in Canadian hospitals</u> Author: Duncan, Bruce <i>Biomedical Engineering, Victoria General Hospital</i></p> <p><u>Comparison of laboratory equipment standards and medical equipment standards. EIC-6100 and EIC-60601 in current medical device management practices</u> Author: Ngoie, Jean <i>The Hospital for Sick Children</i></p> <p><u>Management/benchmarking: A preliminary analysis of clinical engineering data in American general acute-care hospitals</u> Author: Wang, Binseng Co-authors: Eliason, Richard; Richards, Sonny; Hertzler, Lawrence; Moorey, Robert <i>Clinical Technology Services, ARAMARK Healthcare Management Services</i></p>	

<p>1030</p>	<p>Health Canada / CMBES (CE-6) <u>Description</u> This meeting is a continuation of discussions held between CMBES and Health Canada to facilitate ongoing communication and to work towards changes to the regulations to assist both parties.</p> <p><u>Health Canada</u> Denis Roy + teleconference participation Medical Devices Bureau</p> <p>Barbara Harrison and John Wilson Health Products and Food Branch Inspectorate</p> <p><u>CMBES</u> Bill Gentles, PhD, PEng, CCE – President CMBES BT Medical Technology, Toronto, ON</p> <p>Tim Zakutney, MHSc, PEng CMBES Treasurer Ottawa Heart Institute, Ottawa, ON</p>
<p>1400</p>	<p>Applied Clinical Engineering (CE-7) <u>Session Chair</u> Tony Easty, PhD, CCE University Health Network – Toronto</p> <p><u>Are Baxter Colleague CX pumps preventing medication errors?</u> Author: Byrne, Stephanie Co-authors: Manh, Quat; Kresta, Petr <i>Clinical Engineering Health Sciences Centre</i></p> <p><u>Aneroid sphygmomanometers: Do they need regular inspection?</u> Author: Gaamangwe, Tidimogo Co-authors: Sala, Jean-Louis; Krivoy, Agustina; Lawes, Peter; Herzog, Clarence; Mathews, Bindu <i>Clinical Engineering Health Sciences Centre</i></p> <p><u>Electrosurgical burn injuries in minimally invasive surgery</u> Author: Gentles, Bill <i>BT Medical Technology Consulting</i></p> <p><u>Development of a reusable patient blanket for a forced-air patient warmer</u> Author: McConnell, Gordon Co-author: Xiao, Charles <i>Biomedical Engineering Department, Vancouver/Coastal Health Authority</i></p>
<p>1545</p>	<p>Biomedical Engineering and Information Systems (CE-8) <u>Session Chair</u> Tim Rode, MEng, PEng Director, Biomedical Engineering – Interior Health</p> <p><u>Presenter</u> Tony Easty, PhD, CCE University Health Network, Toronto</p> <p><u>Description</u> Two of our colleagues will present how they are structured with respect to their interaction with Information Systems. A facilitated discussion will be encouraged</p>

	<p>to answer the following questions:</p> <ul style="list-style-type: none"> • How do we improve the relationship with Information Systems? • Are there departments out there with organizational structures that work well with Information Systems? • What training and to what level of detail should biomedical techs be trained to function in our new data communication world?
	<p style="text-align: center;">Medical Devices Pavilion</p> <p>1030 Sources of Medical Device Technology in Western Canada (MD-5) <u>Presenter</u> Mike Hewett Business Development Manager Medical Devices, Westlink Innovation Network Inc.</p> <p>Western Canada is an excellent source of technologies that can be applied in the medical device industry. Westlink Innovation Network Inc. has a database of all the researchers in universities and applied research institutions in Western Canada that are conducting research in the area of medical devices. This session will describe some of the research that is going on and how to access it.</p> <p>1115 Navigating the QARA Road (MD-6) <u>Presenter</u> Daryl Wisdahl Director of RA/QA MDX Medical Inc.</p> <p>Quality Assurance and Regulatory Affairs are two essential components of medical device product development, evaluation and commercialization. This session will give a brief overview of these often underestimated areas of the product development process.</p> <p>1400 The role of product evaluation – Human factors (MD-7) <u>Presenter</u> James Watzke, PhD Dean, Applied Research, BCIT Associate Director, Dr. Tong Louie Living Laboratory</p> <p>Most medical and assistive devices interface with both patients and medical professionals in a wide variety of environments. Ensuring medical devices are designed to meet the needs of its users is a critical step in the development process. This seminar will shed some light on the use of live simulation and psychosocial tools to evaluate medical devices and provide feedback for improvement of design.</p> <p>1445 How to work with (i.e. partner or license to) large medical device companies (MD-8) <u>Presenter</u> Peter Fenwick Marketing Director Canada GE Healthcare Technologies</p> <p>Start-up medical device companies and researchers developing novel medical devices may want to consider licensing their technology to larger medical device</p>

	<p>companies with established manufacturing, sales and distribution networks. This seminar will outline some approaches to working with large medical device companies.</p>
<p>0915</p>	<p>Scientific Sessions Crystal Ballroom 1</p> <p>Instrumentation 1 (SC-5)</p> <p><u>Session Chair:</u> Dr Kenneth Norwich Inst. of Biomaterials & Biomedical Engineering University of Toronto</p> <p><u>Enhancement of digital optical microscope dynamic range through adaptive feedback illumination control</u> Author: Adeyemi, Adekunle A. Co-author: Darcie, Thomas E. <i>Department of Electrical & Computer Engineering, University of Victoria</i></p> <p><u>Multispectral endoscopy with a spectrally programmable light engine</u> Author: Stange, Ulrich Co-author: MacKinnon, N. <i>Tidal Photonics Inc.</i></p> <p><u>A low-cost fluorescence based pathogen detector for diagnosing diarrhoeal diseases in infants</u> Author: Wu, Mimi Co-author: Parameswaran, M.; Sankaran, K. <i>School of Engineering Science, Simon Fraser University</i></p> <p><u>Electronic detection of DNA</u> Author: Charania, Tasreen Co-author: Parameswaran, M. <i>School of Engineering Science, Simon Fraser University</i></p> <p>1030</p> <p>Instrumentation 2 (SC-6)</p> <p><u>Session Chair:</u> Dr Philip Parker Electrical Engineering University of New Brunswick</p> <p><u>Microneedle array with interconnects for transdermal drug delivery</u> Author: Lui, Olha A. Co-author: Gray, Bonny <i>Electronics Engineering, Simon Fraser University</i></p> <p><u>Microneedles for advanced drug delivery and health monitoring</u> Author: Stoeber, Boris <i>Department of Mechanical Engineering and Department of Electrical & Computer Engineering, University of British Columbia</i></p> <p><u>Flexible microelectrode array: in vivo recording and tissue reaction</u> Author: Cheung, Karen C.</p>

Co-authors: Renaud, P. H., Tanila, H., Djupsund, K.
Department of Electrical & Computer Engineering, University of British Columbia

Amorphous silicon radio frequency identification (RFID) tags for biomedical applications

Author: Hou, Sean

Co-author: Karim, K. S.

School of Engineering Science, Simon Fraser University

In-vivo assessment and evaluation of lung tissue morphologic and physiological changes from non-contact endoscopic reflectance spectroscopy for improving lung cancer detection

Author: Fawzy, Yasser S.

Co-authors: Petek, Mirjan; Tercej, Marjeta; Zeng, Haishan

Perceptronix Medical Inc.

Integrated power sources for wearable sensors

Author: Tse, W. F. Lydia

Co-authors: Adachi, M. M., Karim, K. S.

School of Engineering Science, Simon Fraser University

1400

Signal Processing 1 (SC-7)

Session Chair: Dr Evelyn Morin

Electrical & Computer Engineering, Queen's University

A somatosensory evoked potential simulator for the investigation into the effect of latency variability

Author: Pearson Lecours, Yvan S.

Co-author: Lovely, Dennis F.

Department of Electrical and Computer Engineering, University of New Brunswick

Investigating latency variation in single trial somatosensory evoked potentials

Author: Mitchell, Jaclyn

Co-author: Lovely, Dennis F.; MacIssac, Dawn

Department of Electrical and Computer Engineering, University of New Brunswick

Effect of stimulation electrode capacitance on the stimulus artifact tail in surface recorded somatosensory evoked potentials

Author: Robichaud, Martin

Co-author: Lovely, Dennis F.

Department of Electrical and Computer Engineering, University of New Brunswick

Stimulus artifact reduction in somatosensory evoked potentials by velocity filtering

Author: Yazdani, Nabil J.

Co-author: Chan, Adrian D. C.

Department of Systems & Computer Engineering, Carleton University

Fetal ECG extraction using triggered adaptive noise cancellation

Author: Badee, Vesal

Co-authors: Chan, Adrian D.C.; Dansereau, Richard M.

Department of Systems & Computer Engineering, Carleton University

<p>1530</p>	<p><u>Experimental determination of minimum distance between wrist and body electrodes in ECG measurement</u> Author: Hannula, Manne Co-author: Heikkinen, Petri <i>Medical Engineering R&D Center, Oulu Polytechnic</i></p> <p>Signal Processing 2 (SC-8) <u>Session Chair:</u> Dr Boris Stoeber Mechanical Engineering / Electrical & Computer Engineering University of British Columbia</p> <p><u>Fractal analysis of myoelectric signals</u> Author: Talebinejad, Mehran Co-author: Chan, Adrian D.C.; Miri, Ali; Dansereau, R. M. <i>School of Information Technology & Engineering, University of Ottawa</i></p> <p><u>Simulating myoelectric signals with a finite length model of muscle</u> Author: Maclsaac, Dawn <i>Department of Electrical and Computer Engineering, University of New Brunswick</i></p> <p><u>Biceps brachii muscle fiber orientation shift with changes in elbow joint angle</u> Author: Martin, Shawn Co-author: Maclsaac, Dawn; Parker, Philip <i>Department of Electrical and Computer Engineering, University of New Brunswick</i></p> <p><u>Cough sound characterization using DSP methods</u> Author: McKee, Anita Co-author: Goubran, Rafik A. <i>Department of Systems & Computer Engineering, Carleton University</i></p> <p><u>Triggerless determination of ballistocardiographic waveforms</u> Author: Florestal, Joël Co-author: Bura, M.; Schmid, M.; Conforto, S.; Mathieu, P.A.; D'Alessio, T. <i>Institut de génie biomédical, Université de Montréal</i></p> <p><u>Creating a "Perfect" artificial neuron</u> Author: Frenger, Paul <i>Rice University</i></p>
<p>1200</p>	<p>Buffet Lunch in the Exhibit Hall (Coal Harbour Room) - Sponsored by Simon Fraser University</p>
<p>1345</p>	<p>Presentation of Best Booth Award as voted by delegates (Exhibit Hall)</p>
<p>1230</p>	<p>Group Discussion: CCE certification in Canada Crystal Ballroom 2 <u>Session Chair</u> Bill Gentles, PhD, PEng, CCE Meeting of all persons with CCE certification regarding re-establishment of a CCE Board of Examiners for Canada</p>

1545	<p>Board of Examiners for Canada.</p> <p>Information Session on CBET/CCE certification in Canada Pavilion</p> <p><u>Session Chair</u> Murray Greenwood, CBET Bill Gentles, PhD, PEng, CCE and Murat Firat, MSc</p> <p>Representatives from the ICC Canadian Board of Examiners will explain the process for one to become a certified clinical engineer (CCE) and certified engineering technician and technologist (CBET).</p>
1900	<p>CMBEC29 Banquet at the Vancouver Aquarium (banquet starts at 2000 hr) - Sponsored by Baxter Corporation</p>
<p>Day 3 Saturday, 3 June 2006</p>	
0745	<p>CMBES General Meeting and Breakfast Crystal Ballroom</p>
0930	<p>Clinical Engineering Crystal Ballroom 2</p> <p>Standards of Practice: Clinical Engineering and Medical Device PM (CE-9)</p> <p><u>Session Chairs</u> Bill Gentles, PhD, PEng, CCE BT Medical Technology, Toronto, ON</p> <p>Martin Poulin, MEng, PEng VIHA, Victoria, BC</p> <p><u>Description</u> Bill Gentles will review and facilitate the ongoing updates to the <i>Clinical Engineering Standards of Practice</i> and review any clinical engineering groups who have recently participated in the peer review process.</p> <p>Martin Poulin will review the standard of practice adopted by BC and Alberta regarding a Minimum Standard of Practice for Medical Device Preventive Maintenance and facilitate discussion regarding the appetite for adopting this as a national standard.</p>
1115	<p>Human Factors Engineering (CE-10)</p> <p><u>Session Chairs</u> Emily Seto, MSc, PEng. University Health Network, Toronto, ON</p> <p>Second speaker TBD Vancouver Coastal Health and UBC, Vancouver, BC</p> <p><u>Description</u> This session will introduce the principles and methods of Human Factors Engineering applied to healthcare issues and will review some practical applications of the tools introduced. A speaker from VCH will review their work with Human Factors Engineering applied to surgical education.</p>
<p>Scientific Sessions Crystal Ballroom 1 and Pavilion</p>	

<p>0930</p>	<p>Biomaterials and Tissue Engineering (SC-9)</p> <p><u>Session Chair:</u> Dr Douglas Romilly Mechanical Engineering, University of British Columbia</p> <p><u>Monitoring hip and knee implants utilizing an implant retrieval program, regional joint replacement registry, and a central database</u> Author: Petrak, Martin Co-authors: Bohm, Eric; Turgeon, Tom; Burnel, Colin <i>Joint Replacement Group, University of Manitoba</i></p> <p><u>Phenotype characterization of human chordoma cells</u> Author: Ostroumov, Elena Co-authors: Swamy, Ganesh; Hunter, Christopher <i>Department of Mechanical and Manufacturing Engineering, University of Calgary</i></p> <p><u>Three-dimensional flow structure downstream of a bileaflet mechanical heart valve during the forward flow phase</u> Author: Mejia, Juan P. Co-author: Oshkai, Peter <i>Department of Mechanical Engineering, University of Victoria</i></p> <p><u>The viscoelastic properties of a surrogate human spinal cord</u> Author: Reed, Shannon Co-authors: Morley, Philip L.; Cripton, Peter A. <i>Department of Mechanical Engineering, University of Washington</i></p> <p><u>Robust estimation of the tissue elasticity using dynamic finite elements and spectral averaging</u> Author: Eskandari, Hani Co-author: Salcudean, Tim <i>Department of Electrical and Computer Engineering, University of British Columbia</i></p> <p><u>Hydroxyapatite coatings for coronary stents – materials processing and in-vivo evaluation results</u> Author: Rajtar, A. Co-authors: Lien, M.; Smith, D., Tsui, M.; Yang, Q.; Troczynski, T. <i>Materials Engineering Department, University of British Columbia</i></p>	<p>Crystal Ballroom 1</p>
<p>0930</p>	<p>Biomechanics (SC-10)</p> <p><u>Session Chair:</u> Dr Theodore Milner Kinesiology, Simon Fraser University</p> <p><u>Design of a motor-driven bicycle ergometer to determine and tune mechanical impedance during cycling</u> Author: Forghani, Ali Co-authors: Markley, Loic; Milner, Theodore <i>Department of Kinesiology, Simon Fraser University</i></p> <p><u>Identification and alteration of gait parameters during load carriage</u> Author: Hare, Caroline</p>	<p>Pavilion</p>

Co-author: Morin, Evelyn
Department of Electrical and Computer Engineering, Queen's University

Static and dynamic forward lean angles during backpack load carriage

Author: Morin, Evelyn
Co-authors: Cole, Anita; Hare, Caroline
Department of Electrical and Computer Engineering, Queen's University

Entropy considerations in reaching movements

Author: McKeown, Martin J.
Co-author: Wang, Z. Jane
Pacific Parkinson's Research Centre, University of British Columbia

Relevance network modeling for discovering "synergy associations" among muscles in reaching movements

Author: Wang, Z. Jane
Co-author: McKeown, Martin J.
Electrical and Computer Engineering, University of British Columbia

Surgeon control of patellar tracking: Effect of femoral, tibial and patellar component placement

Author: Anglin, Carolyn
Co-authors: Brimacombe, J. M.; Hodgson, A. J.; Wilson, D. R.; Tonetti, J.; Greidanus, N. V.; Garbus, D. S.; Masri, B. A.
Dept. of Mechanical Engineering, University of British Columbia

Rehabilitation (SC-11)

Crystal Ballroom 1

1115

Session Chair: Dr Ezra Kwok
Dept. of Chemical & Biological Engineering
University of British Columbia

Development of a powered upper-limb orthosis prototype

Author: Romilly, Douglas P.
Department of Mechanical Engineering, University of British Columbia

Control system and shoulder control interface development for the UBC powered upper-limb orthosis

Author: Romilly, Douglas P.
Co-author: Du, David
Department of Mechanical Engineering, University of British Columbia

The development of a wearable motion analysis system

Author: Sexton, Andrew
Co-authors: McGibbon, C.; Wilson, A.; Hughes, G.; Hudgins, B.
Institute of Biomedical Engineering, University of New Brunswick

Force and torque vectors at the foot generated by surface electrical stimulation of leg muscles

Author: Milner, Theodore

<p>1115</p>	<p>Co-authors: Métrailler, Patrick; Schmitt, Carl <i>School of Kinesiology, Simon Fraser University</i></p> <p><u>Development of robotic tools for the rehabilitation of hand function after stroke</u> Author: Lambercy, Olivier Co-author: Dovat, Ludovic; Ruffieux, Yves; Gassert, Roger; Leong, Teo Chee; Milner, Ted; Bleuler, Hannes; Burdet, Etienne <i>Department of Mechanical Engineering, National University of Singapore</i></p> <p>Brain Computer Interfacing (SC-12) Pavilion <u>Session Chair:</u> Dr James R. Green Systems & Computer Engineering, Carleton University</p> <p><u>Design of a frequency based brain signal training system</u> Author: McKinnon, Aron Co-author: Rawicz, Andrew <i>School of Engineering Science, Simon Fraser University</i></p> <p><u>Methods of detecting active brain signals for environmental controls</u> Author: Oldham, Bradley Co-author: Rawicz, Andrew <i>Department of Engineering Physics, Simon Fraser University</i></p> <p><u>P300-based speller paradigms for brain-computer interface</u> Author: Abhari, K. Co-author: Fazel-Rezai, R. <i>Department of Electrical and Computer Engineering, University of Manitoba</i></p> <p><u>A comparison between two P300 classification methods for a P300-based speller</u> Author: Li, T. Co-author: Fazel-Rezai, R. <i>Department of Electrical and Computer Engineering, University of Manitoba</i></p> <p><u>Artifact removal in EEG-fMRI and nonlinear determinism analysis</u> Author: Meghdadi, Amir Co-author: Fazel-Rezai, R., Aghakhani, Y. <i>Department of Electrical and Computer Engineering, University of Manitoba</i></p>
<p>1300</p>	<p>Awards Luncheon Crystal Ballroom - Student Paper Awards sponsored by Maquet-Dynamed</p>
<p>1430</p>	<p>Closing ceremonies</p>

CMBEC29 Workshops / Courses

Course Titles	Instructors	Date	Location
1. RF Interference and Spectrum Analysis	Dara McLain, EMC Engineer and Eric V. Anderson, Director Hardware Quality Engineering Philips Medical Systems	May 31, 0900-1645 (1 day)	False Creek 1&2
2. Cyber Security for Medical Device Systems	Eric Byres, P.Eng. Research Manager Critical Infrastructure Security Internet Engineering Lab, BCIT	June 1, 0915-1230 (½ day)	Burrard
3. Medical Device Regulations	Rob Ngungu Vice President Clinical, Regulatory & Quality Xillix Technologies	June 1, 1400-1715 (½ day)	False Creek 1
4. Demystifying Display Technologies	Eddie Tuccinardi Solutions Architect Sony Canada	June 2, 0915-1230 (½ day)	Burrard
5. Battery Technology for Medical Devices	Bruce Adams Cadex Electronics	June 1, 0915-1230 (½ day)	False Creek 1
6. Medical Device Safety	Anthony Montagnolo Executive Vice President and COO ECRI	June 2, 0915-1230 (½ day)	False Creek 1
7. Strategic Medical Device Technology Planning	Anthony Montagnolo Executive Vice President and COO ECRI	June 2, 1400-1715 (½ day)	False Creek 1
8. Wireless Network & TCP/IP Concepts	Todd Boyland RSTI	June 3 0900-1700 (1 day)	False Creek 1&2
9. PACS, DICOM, TCP/IP: Managing Digital Imaging Networks	Todd Boyland, CPAS, CPIA Certified PACS Administrator, RSIT Instructor	June 2, 1400-1715 (½ day)	Burrard
Minimal Invasive Surgery Suite Control and Communication Systems	David Haley and Scott Felker Endoscopy/Communication Division Stryker Canada	June 1, 1400-1715 (½ day)	Burrard

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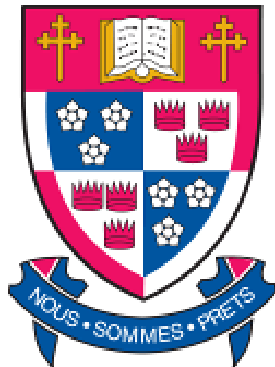


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