BCIT'S OWN OUTSTANDING CANADIAN BIOMEDICAL ENGINEER

ANTHONY CHAN, WINNER OF THE CMBES OUTSTANDING CANADIAN BIOMEDICAL ENGINEER AWARD.

Congratulations are in order for Anthony Chan, the 2007 award winner of the Outstanding Canadian Biomedical Engineer Award. Program Head of BCIT's Biomedical Engineering Technology program, Anthony was astounded when the Canadian Medical and Biological Society (CMBES) surprised him with this prestigious award at the Festival of International Conferences on Caregiving, Disability, Aging, and Technology in Toronto last June.

"It came to me as a surprise when the award was announced at the CMBES AGM luncheon at the conference," says Anthony. "I was surprised and honoured, as I was nominated and recognized by people in my own profession from across the country."

At the conference, Anthony also presented a peer reviewed scientific paper titled "Development of an Intra-oral Bone Growth Stimulator for Titanium Dental Implants." This was an applied R&D project he carried out in conjunction with staff from the BCIT Technology Center. In addition, he introduced a new BCIT online course (BMET 7104) titled Human Factor Engineering in Health to the conference audience at the "Usability/Human Factors" session.

The CMBES Award was established in 1989 and is presented to a Canadian biomedical engineer who has made outstanding contributions in the field of biomedical engineering. Such achievements can be in the form of scientific or technical developments as well as a broad-spectrum of areas such as leadership, service, and organizational skills that contribute to the improvement of health care delivery in Canada. For further information on CMBES, please visit www.cmbes.ca.

INSTRUCTOR NAMED OUTSTANDING WOMAN IN CONSTRUCTION

On behalf of the School of Transportation and School of Construction and the Environment, BCIT would like to congratulate Tamara Pongracz on winning the prestigious Vancouver Regional Construction Association (VRCA) and Canadian Construction Women (CCW) Outstanding Woman in Construction 2007 Award. Tamara was honoured at the 19th annual Awards of Excellence at the VRCA on November 1.

Tamara's many achievements as chief instructor for BCIT's Trades Access department and in the construction industry were well-highlighted before the large audience of over 700 people.

The VRCA represents more than 700 general contractors, specialty trade contractors, manufacturers, suppliers, and professionals active in the multi-billion dollar construction industry in the Lower Mainland and Fraser Valley. VRCA members are involved in all size operations from multi-national corporations to small owner/operator businesses.

The CCW is a vibrant organization that supports women in, or wishing to be in the construction industry for over 26 years.

(L–R) WAYNE HAND, MARY LYNN HAND, RICHARD PICKETT, TAMARA PONGRACZ, DONNA NOBBS, AND ROD GOY.

publishing information

The BCIT *Update* is published throughout the school year by the Marketing and Communications department.

Submissions are welcome, and should be forwarded to the editor by *Update* deadlines. While every effort will be made to accommodate all submissions, please note that inclusion depends on the amount of space available. To ensure your story is included, book your space with the editor.

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UPDATE

SPECIAL EDITION
APPLIED RESEARCH

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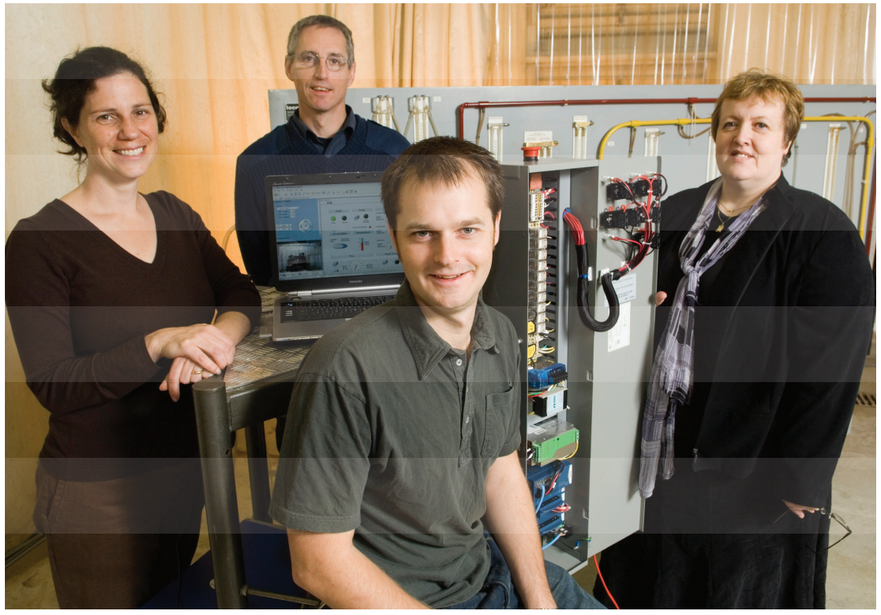
The mission of BCIT is to build pathways for career success in the global marketplace through teaching excellence and applied education and research.



POWER ENGINEERING REMOTE LAB

The Power Engineering department delivers training for three full-time programs using classroom and laboratory training facilities. In addition, there are a large number of students in BCIT's distance education programs who, until now, have not been given the benefit of carrying out several practical laboratory exercises.

Our goal is to overcome this disadvantage by supplying real-time access to our laboratories via the internet.

Before going online with extensive laboratory interaction, the Power Engineering department has introduced a pilot project. Power Engineering and Technology Centre researchers have worked together to automate an existing hydraulic bench and integrate it with LabVIEW, a web-enabled software package.

The hydraulic bench was upgraded with several modifications and additions allowing either push-button or computer interface control. A control panel enclosure containing switching and signal control circuitry was fitted onto the existing cart holding the water tank and pump. Flow control, line selection, and purging, previously controlled by manual valves, are now controlled electronically. Monitoring water flow, level, temperature, and pressure can still be done at the bench, however the new system will allow readings to be made remotely through the computer.

continued on page 2

ABOVE: (L–R) NANCY KNAGGS, JOE NEWTON, JOEL CARTER, AND SANJA BOSKOVIC.

contents

> Remote Lab continued from page 1

Using the hydraulic bench to determine friction loss in piping systems, the department has developed simple online labs. Students can log-on to the remote lab and operate the hydraulic bench through a web-based interface. This allows the students to start and stop the pump, open valves to direct the water flow to separate pipelines, purge air from the system, and adjust the flow through the lines. The operation of the hydraulic bench is monitored using a high-resolution web camera with zoom and pan functions to allow the students to remotely observe the operation of the equipment and take visual readings from manometers to determine drops in pressure across piping components.

Using LabVIEW, data is collected and trends generated so that students can immediately observe the changes made to pressure and flow as they adjust the position of the control valve. Electronic pressure sensors verify the readings that students take using the camera.

Although this pilot project is fairly simple, goal is to expand this concept to more complex labs and eventually have students remotely operating our Power Plant Lab.

The Power Engineering department's Remote Access Lab pilot project is a collaborative effort between the Power Engineering department, BCIT's TEK Initiative, and applied research groups in the BCIT Technology Centre and the Applied Research Liaison Office.

NEW TO BCIT

Dan Burritt, *assistant instructor,* School of Business

Ahmet Ciminsel, *instructor,* Workplace Automation

Jas Dosanjh, *auxiliary,* Library

Colin Ferris, *instructor,* Drafting

Toni-Marie Ferrone, *faculty,* School of Health Sciences

Ian Fingler, *faculty,* School of Health Sciences

Heather Harrison, *special projects assistant,* BCIT Foundation

Tara Holland, *auxiliary,* School of Transportation

Linda Huang, *program assistant,* CST—Btech

Debbie Hunter, *auxiliary,* Food Services

John Keith, *faculty,* Communication

Richard Kobayashi, *instructor,* Electrical

William Leduke, *instructor,* Electrical

Rod McRae, *instructor,* Electrical

Juraj Ontkanin, *intermediate systems analyst,* Information Technology Services

Oleg Petrusenko, *assistant instructor,* Mechanical Technology

Barrie Pfaff, *instructor,* Gasfitting

Linsey Rowat, *auxiliary,* Library

Ellen Scobie, *auxiliary,* MEIP Administration

Brenda Stainton, *assistant instructor,* School of Health Sciences

Elaine Strilaeff, *program assistant,* CST—Btech

Carlos Teodoro da Silva, *auxiliary,* Food Services

Laura Van Roekel, *assistant instructor,* School of Health Sciences

Brook Walker, *instruction,* School of Transportation (Marine Campus)

James Wanless, *senior systems analyst,* Information Technology Services

ON THE MOVE, PROMOTIONS, DEPARTMENT CHANGES

Bin Bains, *operations administrator,* Facilities Maintenance

Trudy Bruce, *customer service representative,* Registrar's Office

Toni Car, *financial aid and awards assistant,* Student Financial Aid and Awards

Sonia Dhaliwal, *customer service representative,* Registrar's Office

Sukhjit Dosanjh, *customer service representative,* Registrar's Office

Chelsea Gibson, *customer service representative,* Registrar's Office

Dianna Harris, *administrative manager,* School of Transportation (Marine Campus)

Tanya Kollenz, *customer service representative,* Registrar's Office

Paul Livingston, *audio visual service technician,* Learning and Teaching Centre

Maggie Ostrowski, *program advisor,* Program Advising

Barbra Shauer, *enrolment planning analyst,* Enrolment Planning

Jennifer Storness-Kress, *customer service representative,* Registrar's Office

Kamilla Villa, *customer service representative,* Registrar's Office

Christine Zapisocki, *hr systems and skills training coordinator,* Human Resources

SAVE THE DATE!

STAFF SERVICE & RECOGNITION CEREMONY

Dec. 11, 1 pm

SE2 Great Hall

ALL STAFF CHRISTMAS RECEPTION

Dec. 11, 2:30 pm

Town Square Cafe

Contact for both events:
Michelle_Traynor@bcit.ca

WINTER GRADUATING AWARDS

Feb. 21, 5–6 pm

Willingdon Conference Centre

WINTER CONVOCATION CEREMONY

Feb. 21, 7–9 pm

Willingdon Conference Centre

Contact for both events:
Michelle_Traynor@bcit.ca

BCIT'S ALL-STAFF PROFESSIONAL DEVELOPMENT DAY

Feb. 27, 8–4:30 pm

Contact: pdday@bcit.ca
bcit.ca/pdday

OPEN HOUSE 2008

Apr. 11 & 12, 9–4:30 pm

Contact:
Janeen_Alliston@bcit.ca

BCIT DONORS HONOURED AT ATC

(L–R) MICHAEL LAFRAMBOISE, COMPASS GROUP ON BEHALF OF CROTHALL SERVICES CANADA INC.; AMY FELL, BCIT FACULTY AND STAFF ASSOCIATION; ADAM PION, PRESIDENT, BCIT ALUMNI ASSOCIATION; MARGARET LANTHIER; ROLAND GAGEL, CONTROLLER, BCIT STUDENT ASSOCIATION; ALLEN SOLTAN, PARTNER, DAVIS LLP; DR. VERNA MAGEE-SHEPHERD, ACTING PRESIDENT, BCIT.

The BCIT Foundation's seventh annual Celebrating the Best donor recognition event was one to remember as several hundred donors gathered at the Grand Opening of the Aerospace Technology Campus (ATC) on October 12. The breakfast event acknowledged how their contributions have increased the BCIT Foundation's revenue by 46 percent in support of BCIT students, our school-based funding priorities, and cutting-edge facilities like the ATC.

The event took place right outside the ATC hangar, giving donors the first opportunity to see the inner workings of the facility. It was highlighted with a thank-you speech from bursary and entrance award recipient Kelly Mitchell, a second-year student in the Aircraft Maintenance Engineer—Category E program.

"With government student loans and the help of donors like you, myself, along with many other young people aspiring towards something better, have been able to make our educational dreams a reality," said Kelly. "For that, I truly thank you."

Following the speeches and presentations, donors, alongside invited guests and media, had the opportunity to hear remarks from Gordon Campbell, premier of British Columbia and enjoy the acrobatics of Cirque Phoenix.

Many thanks to our sponsors: Genus Capital Management, BCIT Alumni Association, Crothall Services Canada Inc., BCIT Faculty and Staff Association, Davis LLP, BCIT Student Association and BCIT Marketing and Communications for contributing to the event's success.

PREMIER GORDON CAMPBELL AND BCIT ACTING PRESIDENT DR. VERNA MAGEE-SHEPHERD WATCH STUDENTS OPERATE AN AIR TRAFFIC CONTROL TRAINING TOOL AT THE NEW ATC.

Special thanks to everyone who helped make our Grand Opening a huge success.

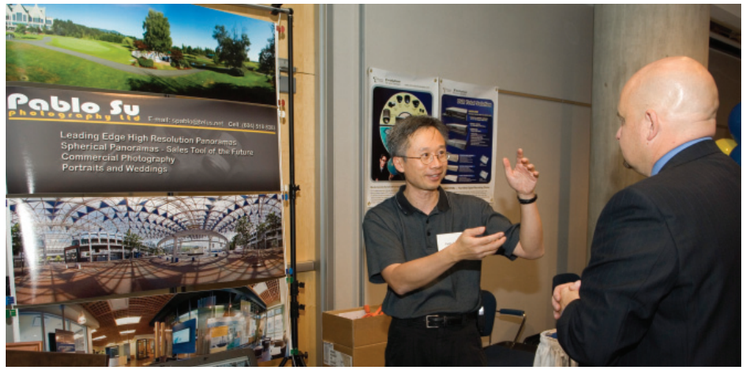
SUCCESS DEPENDS ON ALL OF US

Through the BCIT United Way Campaign, your generous donations support United Way funded agencies across the Lower Mainland. Giving by pledges is the way to make the most impact (BCIT donated $98,000 in 2006), but special events are a great way to raise awareness and have fun. This year, the School of Construction and the Environment Pancake Breakfast raised $1,500 ($865 in 2006) and the Silent and Live Auction raised $5,968 ($2,244 in 2006). Other events included the Library Bake and Book Sale that brought in $500, Bocce that raised $320, the School of Transportation 50/50 Draw made $111, and the first Bingo Game scored with $559. Final numbers on dollars raised for the overall campaign are yet to be determined. Thank you to everyone for supporting the United Way!

A BCIT STUDENT RECEIVES HIS BREAKFAST AT THE UNITED WAY PANCAKE BREAKFAST.

UNITED WAY LIVE AND SILENT AUCTION PLANNING COMMITTEE: (L–R) MICHELLE PAYNE, KAREN CRESSWELL, DONNA WOO, AND MICHELLE TRAYNOR.

BEST PROGRAM TURNS 10



BEST PROGRAM GRADS: (L–R) PABLO SU, BUSINESS SHOWCASE EXHIBITOR OF PABLO SU PHOTOGRAPHY SPEAKS WITH KEN GALLIE OF LABEL PAK PRINTING.

It was quite a sight to see, as students and graduates of the BCIT Entrepreneurial Skills Training (BEST) program came together October 11 at the Downtown Campus for the BEST 10 Year Celebration and Alumni Business Showcase.

The event was hosted by the Venture Development Centre and Coast Capital Savings to recognize 10 years of delivering the BEST program. The program offers specialized training for new entrepreneurs and has helped open more than 1,000 businesses in the Lower Mainland.

More than 150 entrepreneurs gathered to make new business contacts, mingle with former classmates and staff, and exchange ideas with other small business owners. You would be hard pressed to find a more diverse collection of companies than those featured at the business showcase. Exhibitors included: Matt Deeter of West Coast Mobile Orthotics, Susan Borax of Good Riddance Professional Organizing, Phillip Camire of Phil's Closet Makeovers, and many others.

For more information about programs offered at the Venture Development Centre call 604.451.6989 or visit bcitventure.com

MARK YOUR CALENDARS, OPEN HOUSE 2008 WILL BE HELD APRIL 11–12

Open House 2008 is a biennial two day, campus-wide event that showcases BCIT's educational and applied research offerings to prospective students, potential business partners, and the general public.

Interactive, student-created program displays that help visitors learn about BCIT programs and the careers they lead to are the highlight of Open House. Entertainment, demonstrations, and activities at various locations throughout the campus add to the upbeat atmosphere.

In 2006, there were 23,000 visitors to the Burnaby Campus over the two days. We aim to exceed that number in 2008 and make it the largest Open House ever.

Open House planning and implementation is led by a working committee with representatives from the schools and service departments across the institute. If you are interested in being a part of Open House planning, please contact Janeen Alliston at 604.431.4973 or at janeen_alliston@bcit.ca.

BCIT2008 OPENHOUSE
Change your world. Enter ours.

BCIT STUDENTS HELP BUILD LIGHTS OF HOPE

ABOVE AND RIGHT: BCIT ELECTRICAL ENTRY LEVEL TRADES TRAINING STUDENTS CONSTRUCT THE LIGHTS OF HOPE 2007 DISPLAY.

Students from BCIT's Electrical Entry Level Trades Training program have been helping make the 10th anniversary of St. Paul's Hospital Foundation's annual Lights of Hope fundraising campaign come to life, as they practice their skills while building the massive light display at St. Paul's Hospital in downtown Vancouver.

The display is built entirely by volunteers, including BCIT's students, from donated materials, and has become a holiday season landmark in Vancouver.

BCIT has been involved for the last eight years—students do all of the testing, wire the display, and complete other preparations, led this year by BCIT instructors Bryan Forman and Chuck Davis. This year, the student team also assembled a number of the mini-electrical boxes needed for the display, and installed two very large power panels allowing for an upgrade to the display's power. Students participating were: Evan Temple, Daryn Quinsey, Sivel Calero, Jose Gonzalez, Adam Puddicombe, Yannick Gagnon, John Bean, Ray Suen, Tony Tung, Alex Tourigny, Dana Makela, Brian Swaisland, Vita Vo, and Allan Zhang.

The Lights of Hope display officially lit up on November 16, and will shine through January 5. For more information, visit www.helpstpauls.com.

Information on Electrical Trades Training at BCIT can be found at bcit.ca/construction.

MESSAGE FROM THE VICE PRESIDENT

WHAT IS THE MOTIVATION FOR PURSUING RESEARCH AT BCIT?

DR. JIM REICHERT, VICE PRESIDENT, RESEARCH AND INTERNATIONAL.

At a university, the answer to this question is straightforward and typically involves some variation of "the advancement of curiosity driven scholarly pursuits to push back the frontiers of new knowledge and understanding." At BCIT however, we need go no further than our mission statement to see that our motivation is fundamentally different. Our mission is about practical education that creates benefits for our students.

Similarly, applied research at BCIT is about creating direct and indirect benefits for our students. The *2007/08–2009/10 BCIT Service Plan* echoes this when it says "Our research is oriented towards functional outcomes, solving problems, and enhancing competitiveness for business and industry while creating opportunities for our students."

BCIT's research frequently involves close work with business and industry to solve their technical problems, adapt technology, or create new products. Several examples are included in this issue of *Update*. Our applied research helps firms be successful; these are often the future employers of our students.

The interactions stemming from applied research can create opportunities for beneficial engagement at many levels, including student projects, co-op opportunities, sponsorships, participation on program advisory committees, and so on. The research provides our faculty with a window into our client's needs and capabilities; knowledge that is reflected in the classroom to help ensure that our students receive pragmatic and relevant career-focused education that prepares them for the skills employers need.

Having an established applied research and development component strongly linked to industry is one of the key characteristics of a polytechnic institution. BCIT's credibility and success in developing this attribute is growing steadily and is engaging faculty and staff from across the institute. I encourage your interest and suggest visiting BCIT's Applied Research Liaison Office at bcit.ca/appliedresearch.

—Dr. Jim Reichert, vice president, Research and International.

MESSAGE FROM THE DEAN

BCIT APPLIED RESEARCH: THE VALUE PROPOSITION

Applied Research at BCIT is now in its 18th year. It seems like as good a time as any to step back and contemplate the value of this multi-decade investment by BCIT. The first term that comes to mind is *polytechnic*. Although, many years ago, this term wasn't used to describe BCIT's post-secondary approach or model, I now see that BCIT is to be commended for investing in applied research (before it was fashionable to do so), and thereby setting the stage to becoming Canada's leading polytechnic.

As an active participant in Polytechnics Canada, I can tell you that we are envied for the infrastructure, staffing, and achievements associated with BCIT's applied research enterprise. As we watch the political pendulum swing toward a greater value of applied research, commercialization, and high-level technical training, there are very few post-secondary institutions in Canada that can lay claim to such a rich and productive applied research history.

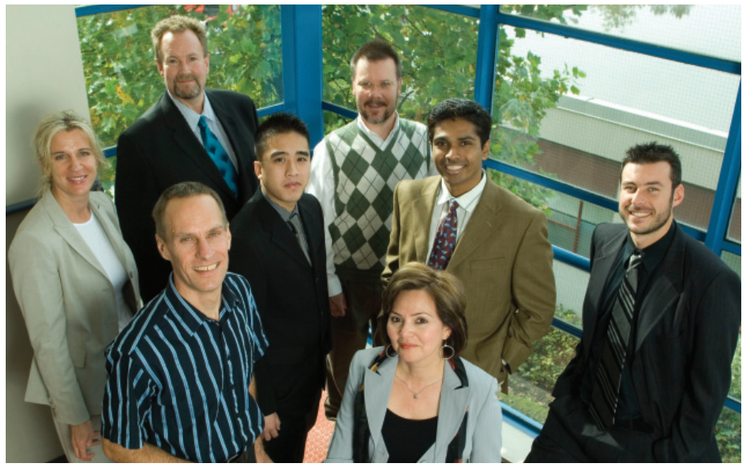
The second term that comes to mind is *economic impact*. I hope all BCIT staff have taken the time to read the 2007 report on the economic impact of BCIT on British Columbia. It is estimated that BCIT Applied Research in the Technology Centre alone has resulted in a $77 million impact on the economy. The report also suggests that the applied research done outside the Technology Centre has had an equal impact. When added together, applied research activities at BCIT account for approximately 25 percent of the total economic impact of the institute. What's more impressive is that our great staff members in the Technology Centre and the Applied Research Liaison Office (ARLO) are just learning of the magnitude of such impacts—and knowing them to be the competitive entrepreneurial types that they are, I can't wait to see what they will achieve in the future.

I invite you to pursue this and call ARLO at 604.456.1032, to find out for yourself what we do in Applied Research, and what you can do to participate. I encourage you to make your own determinations of Applied Research's value proposition to BCIT, and to the BC economy. We'd love to hear from you on this, or any other topic.

—Dr. James Watzke, dean, Applied Research,

DR. JAMES WATZKE, DEAN, APPLIED RESEARCH.

MESSAGE FROM THE ARLO DIRECTOR



(L–R) THE ARLO TEAM: (FRONT ROW) JOE BOYD, MARTINA CARMONA, (SECOND ROW) SUSAN OSTERMANN, DAVID DANG, SAHAIL SHARIFF, JAMES WELLS, (BACK ROW) ROB DUNCAN, DIRECTOR OF ARLO, AND STEFAN JOSEPH.

It has been an exciting year for the Applied Research Liaison Office (ARLO). Among other achievements, we have recently signed a licensing deal for a BCIT-invented product, the Heavy Tool Support Arm. This product will soon be selling to consumers in Europe and other countries—living proof that commercialization can work when driven by industry demand.

ARLO was created several months ago when the Technology Commercialization and Research Services Offices were combined into a single entity in order to provide more of a one-stop-shop for both industry and faculty researchers. I am privileged to be a part of a terrific team that is available to assist you in a number of ways. If you are a faculty member who is seeking information or help regarding funding for research, Stefan Joseph and Joe Boyd are able to help out. If you are a researcher or company who wants to get a product into the market, Sahail Shariff and James Wells can offer advice and assist you with this challenging journey. When it is time to tell your research story to the world, Martina Carmona, our marketing expert, can help you get the story out. Behind the scenes, we have Susan Ostermann, who ensures the funding and grants mechanisms are working smoothly. Finally, our Administrative Assistant, Jenna Nordin, is the glue that holds the department together.

HEAVY TOOL SUPPORT ARM

ARLO is also fortunate to have David Dang, a recent Entrepreneurship grad from BCIT, who has joined us as a graduate intern, and is contributing on numerous fronts while learning the art of technology commercialization.

I certainly hope that you will come by for a visit, so that we can get to know you and your interests. I personally look forward to meeting as many of you as I can over the coming year, and will be visiting department meetings and other events as the year progresses.

Rob Duncan, director , ARLO

INTELLECTUAL PROPERTY

BCIT's Board of Governors confirmed its commitment to encouraging and protecting the ideas and technologies generated by BCIT's faculty, staff, and students by approving and publishing the "BCIT Intellectual Property (IP) Policy" in May, 2006.

In today's academic environment, almost all Canadian post secondary educational institutions have an IP policy and in-house technology transfer expertise. Technology transfer, in this context, is simply the knowledge of how to transfer technology from academia to industry. BCIT's IP policy outlines how to determine who owns IP developed at BCIT (in some cases the IP is owned by the individual creator(s), in other cases it is owned by the institute), and how financial gains are distributed if BCIT-owned technology is successfully transferred to an industry partner. In order for this to occur, the institution and its faculty and staff must be clear on who owns the technology, and what their respective rights are.

BCIT has established an Applied Research Liaison Office (ARLO), staffed by people who have the expertise to evaluate when and how to protect IP, how to make the necessary connections with industry, and to how to negotiate appropriate commercialization deals.

BCIT's IP policy establishes that BCIT inventors are entitled to 55 percent of future net revenues when BCIT commercializes the technology. Other than providing their cooperation to the commercialization activities undertaken by ARLO staff, inventors are not required to take on any personal risk. The remaining 45 percent of net revenue is retained by BCIT to support further research and research-related activities, including developing a commercialization plan, implementing a licensing deal, as well as auditing and managing the future development of the technology. At 55 percent, this policy is highly favourable to the creators of new technology (both by academic and industry standards), and is a policy aimed at encouraging and intensifying long-term applied research at BCIT.

If you'd like to discuss this topic further, please contact James Wells in ARLO at 604.451.7155. For more information on the IP policy and procedures, please visit bcit.ca/appliedresearch/policies.

FILMFLEX TAKES TRAINING TO ABORIGINAL COMMUNITY

In the spring of 2007, BCIT's FilmFLEX program applied for provincial government funding to help provide training to an Aboriginal community within BC. A majority of the applicants required the Aboriginal students leave their communities and travel to the training institution. As is often the case, BCIT envisioned something different—bringing the training to the community.

In mid August, FilmFLEX received funding to conduct a two-week workshop within the Aboriginal community in the Nisga'a territory. Located just outside Terrace, BC, the community resides in the village of New Aiyansh, the capital of the Nisga'a Lisims regional government. The Nisga'a Lisims encompasses four villages and a vast territory. Of the approximately 3,000 people living there, a considerable majority are members of the Nisga'a nation.

Trudy Handel, coordinator of BCIT's FilmFLEX program, cinematographer Doug Franks, and editor Todd Giroux, taught the students how to shoot, edit, and market their projects over the two-week period. Many of the participants chose to use the technology to preserve their culture, and record the oral history of their Elders. Many of the students had never held a video camera before, nor had they edited. At the end of the second week, they had each shot and edited a short video piece—and done an amazing job.

ABORIGINAL STUDENTS LEARN HOW TO EDIT ON FINAL CUT: (L-R) FERN SCODANE, SHEILA AZAK, AND PAUL MERCER.

The training was held in the local high school, allowing the FilmFLEX crew to meet the principal of the high school who happened to be a former CBC employee. Responsible for setting-up video training programs in several schools in northern Manitoba and Ontario, he now plans to set-up video training for students in the Nisga'a school district.

Since conclusion in late August, FilmFLEX has been in contact with the Nisga'a Lisims government of whom are very pleased with the outcome of the training. At a recent meeting of the Elders, the former students were able to videotape the conference using the equipment BCIT had provided.

FilmFLEX will continue to monitor the work of the program participants over the next few months. Since August, FilmFLEX has been approached by an Aboriginal organization in Ontario, whom has expressed interest in developing a similar project for their people, and the development of a FilmFLEX East program.

BCIT'S INTERNATIONAL PARTNERSHIP IN UKRAINE

TNEU FACULTY CELEBRATE PARTNERSHIP WITH BCIT FACULTY AND STAFF.

During the week of October 15, BCIT took a large step towards improving international relations by welcoming four members of the Ukrainian Ternopil National Economic University (TNEU) faculty to the Burnaby and Downtown Campuses.

Back in April, members of BCIT's School of Business were warmly welcomed when they travelled to Ukraine to investigate the potential possibilities of a partnership with TNEU. Both parties' efforts were again proven worthwhile as they met for a second time, as part of a development project aimed at improving the relationship between post-secondary institutions and the emerging free market economy in Ukraine. Their visit here was funded by the Canadian International Development Agency.

"On our trip to Ukraine, we found the faculty at TNEU, the business representatives, and other post secondary institutions very welcoming of our ideas and were eager to find ways for us to help them," says Dick Dolan, dean of BCIT's School of Business. "We already had a group of Ukrainian MBA students and graduates here this fall after only one visit in Ukraine who were eager to meet Western businesses and learn more about Canadian business practices."

TNEU dignitaries were led by Dr. Lyudmyla Havrylyuk-Yensen, dean of the Ukrainian-Dutch faculty of Economics and Management. The other accompanying visitors included Dr. Olena Sokhatska, chair of the Financial Engineering department, Lidiya S. Kurant, chair of the Business Communication and Organizational Behaviour department, and Nataliya Batryn, senior instructor of the Business Communication department. TNEU dignitaries toured the Burnaby and Downtown Campuses all week, and were led by faculty and staff from BCIT's School of Business.

FEDERAL FUNDING ENABLES BCIT APPLIED RESEARCH

The Natural Sciences and Engineering Research Council of Canada (NSERC) is the primary national funding body for research in engineering and the natural sciences. It supports basic university and project research through discovery grants and partnerships, as well as the advanced training of highly qualified people. NSERC also funds applied research and this year, NSERC awarded full eligibility to BCIT to apply for funding at the university level.

This recognition of BCIT's applied research has opened up a number of funding programs for us, including: Discovery Grants, Idea to Innovation (I2I), Strategic Project Grants, Research Tools and Instruments, and Discretionary Grant Funds. Since receiving full eligibility, BCIT researchers have received a Discovery Grant for Dr. Hua Ge's research on wind-driven rain and its impact on building envelopes, and a Discretionary Grant to Dr. Mehrzad Tabatabaian for his research in renewable energy. Dr. Ge's Discovery Grant also resulted in BCIT's first NSERC Undergraduate Student Research Award (USRA), to a student working this past summer.

Some other recent research funding successes have included a major infrastructure grant from the Canada Foundation for Innovation (CFI) which went to BCIT biotechnology researchers to help develop the Integrated Molecular Biology Laboratory (IMBL), and funding from Western Economic Diversification Canada toward the purchase of equipment to help establish a new advanced prototype hub and improve the institute's technology commercialization capacity.

Not only does receiving major research funding help facilitate research projects, but it helps build BCIT's overall research capacity, and demonstrated our research capabilities to fund peer review committees, improving our chances for future funding awards.

Individuals who wish to submit applications to NSERC are encouraged to contact the NSERC research grant officer Stefan Joseph in BCIT's Applied Research Liaison Office at 604.456.1030.

NSERC CRSNG

WHY BCIT'S HTRG IS CERTIFIABLE

BCIT'S HEALTH TECHNOLOGY RESEARCH GROUP (HTRG).

In March, BCIT's Health Technology Research Group (HTRG) joined the ranks of research organizations certified to International Organization for Standardization (ISO) standards. What makes the HTRG unique is that it is the only organization within a post-secondary school certified to two standards —ISO 13485:2003 and ISO 9001:2000 in North America.

The HTRG has been conducting applied research focused on medical and assistive device development and evaluation for over 10 years. Projects range from design and fabrication of clinical-ready prototypes at the Burnaby Campus, to testing and evaluation of commercial products at the Dr. Tong Louie Living Laboratory in downtown Vancouver.

Working closely with manufacturers, entrepreneurs, and public service organizations, the HTRG helps them realize their goals in the area of health technology, product development, and evaluation. The HTRG also conducts publicly funded applied research in a diverse range of health areas.

Health Canada mandates that all medical device manufacturers wishing to sell their product in Canada must comply with ISO 13485:2003. By adopting this standard, the HTRG is adding value to its services by standardizing its product development procedures, and creating good records of all project-related activities. For clients with their own ISO quality system, the HTRG design documentation can feed seamlessly into their clients' requirements.

ISO 9001:2000 adds in the requirement that the HTRG demonstrate its ability to consistently provide products and services that meet customer and applicable regulatory requirements. ISO 9001:2000 also stresses continual improvement of the system, something that the HTRG achieves by client communication and follow-up, as well as internal monitoring of all projects and processes.

IV INFANT SAFETY VEST

In 2003, a baby boy, while being treated in an Alberta hospital, died from strangulation when he got tangled in medical tubing. Unfortunately, this was not an isolated incident.

There are other reports of similar deaths, and this does not include the many near misses that occur but are rarely documented. This problem exists because of the many medical tubes and lines attached to patients during treatment, such as intravenous (IV) lines, oxygen tubes, and feeding tubes. When a patient moves, these lines can potentially wrap around the neck causing strangulation. Those particularly at risk include young and cognitively impaired patients.

BC Children's Hospital recently approached BCIT's Health Technology Research Group (HTRG) to help develop a solution to this problem. BCIT researchers came up with three inventions which were subsequently evaluated by nurses from various departments throughout the hospital. One device, the IV Infant Safety Vest, was selected for further development and evaluation in actual clinical use.

The IV Infant Safety Vest fits snugly around the patient's upper body. It gathers all medical lines and tubes from the upper body in a special sleeve incorporated into the vest, and channels these lines and tubes to the lower part of the body, where they emerge and are hooked up to various equipment. The disposable vest is designed to be effective at preventing entanglement, comfortable to wear, easy to clean, and use. It must not interfere with the normal, everyday activities of the patient and caregiver(s), and must avoid introducing any additional hazards.

The project is a partnership between BC Children's Hospital and BCIT with funds coming from the hospital and the ARLO Prototype Development fund at BCIT. The goal is to commercialize a product that will save lives.

BCIT's HTRG product development team has just completed phase one of a multi-phase development process whose goal is to develop a design that is safe, effective, reliable, and suitable for clinical trials, and to produce at least 100 prototypes for evaluation. Phase One resulted in a complete set of design requirements that consider everything from effectiveness to manufacturability. Next, the team plans to put the finishing touches on the detailed design and begin production of the first prototype for verification testing.

The prototype will be evaluated in a controlled study in a simulated-care environment at the Dr. Tong Louie Living Laboratory at BCIT's Downtown Campus. The evaluation will use healthy volunteers to verify the safety and function of the product. This will be followed by a study in a hospital setting on patients ranging from six months to three years—the population most at risk of strangulation.

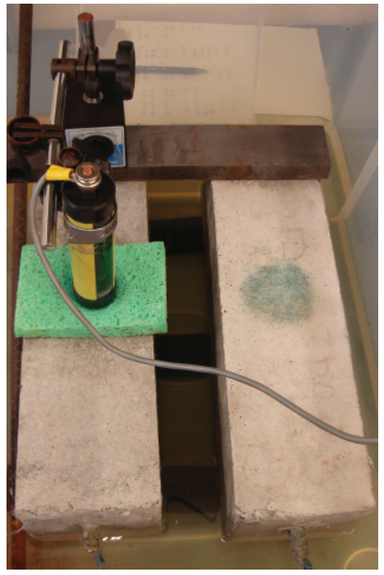
USE OF TECHNOLOGY TO MONITOR HEALTH OF STRUCTURES

The recent collapse of the Quebec overpass and the Minnesota bridge have raised further concerns about the deteriorating conditions of Canada's aging infrastructure and maintenance of different civil engineering structures. According to the National Centre of Excellence (*Annual Report 1996–1997*), Canada faces an "infrastructure deficit," which is an estimated $74 billion gap between needed and actual infrastructure investment. The deficit to repair Canadian bridges alone is estimated to be about $10 billion.

A new interdisciplinary field, called *Civionics*, has emerged that utilizes the expertise of Civil/Electronics/Computer Engineers to monitor the health of structures using state-of-the-art sensors. One such research project has been initiated at the BCIT department of Civil Engineering, where corrosion of reinforced concrete is being monitored using sensors and data loggers. In the first phase of this project, an in-house system is being developed that replicates field conditions to monitor performance or health of our infrastructure. Once the first phase is completed, the equipment will be used in the field to record and observe the data online through a wireless web-based system. The basic equipment (half-cell equipment) and the data logging system are being used to monitor performance of some specimens exposed to corrosive environments.

Cement production creates green house gases, and replacing part of the cement in concrete with fly-ash helps to make concrete more sustainable. Randomly distributed fibers are already being widely used to improve the properties of concrete and increase durability. Fibers are known to reduce permeability and the cracking of concrete, leading to reduction in corrosion potential. Hence, a couple of other industry sponsored projects have also been initiated where the effect of admixtures such as fiber reinforcement, water proofing admixtures, and high volume fly-ash on reducing corrosion will be investigated.

If you would like to learn more about this ongoing research, please contact Rishi Gupta at rishi_gupta@bcit.ca.



HALF-CALL CORROSION MONITORING SET-UP.

FIRST INTELLIGENT POWER GRID TO BE ROLLED OUT AT BCIT

(L–R) DR. HASSAN FARHANGI AND DR. MEHRZAD TABATABAIAN.

The Group for Advanced Information Technology (GAIT) at the BCIT Technology Centre is establishing a new research area—the Intelligent Power Grid. The focus of this research will be to develop technologies and solutions for the energy conservation and optimization issue faced by utilities today. In doing so, the GAIT group will partner with local companies and industry members to develop and set-up the first micro intelligent power grid model at the BCIT Burnaby Campus.

Currently, two major issues are thwarting utility companies around the world: energy conservation and the rising cost of power generation. These issues have resulted from immensely outdated power generation, transmission, and distribution system. Although utilities provide one of many critical services to users, they have yet to build a mechanism for receiving real-time feedback on how these services are utilized and whether the distribution system is performing effectively.

Today, utilities are generating power at the height of their anticipated demand and are blindly moving towards termination. If the generated power is less than the actual demand, there are black-outs. And if it is more than aggregated demand, the excess power is burnt in dummy loads. Considering the ever-rising demand and cost of power generation, this approach is extremely unsustainable.

Many research initiatives termed *intelligent power grids* are underway around the world to help develop solutions to this issue. The central idea of an intelligent grid is, by connecting old and new devices and enabling them to communicate with each other by passing information to a central location, the system will make educated decisions resulting in optimization of power distribution and transmission.

BCIT's role in the Intelligent Power Grid will be to develop software and communication protocols to enable devices on the grid to communicate with each other. Local companies will provide different sets of equipment and technology including smart meters, data collectors, smart sensors, smart appliances, as well as software for managing load, demand, and assets. This will allow BCIT to demonstrate and test the viability of various platforms, models, and solutions which will collectively constitute the Power Grid of the future.

BCIT's micro grid is poised to be the first intelligent power grid in British Columbia, showcasing BC's technologies and expertise—and ultimately helping to put BC at the forefront of this thriving industry.

RESEARCH ETHICS AT BCIT

Research ethics involving human subjects are concerned with ensuring that researchers pursue morally acceptable ends, and use morally acceptable means to achieve those ends.

This is done by reviewing what the research is intended to accomplish, and how it will be conducted, in regards to the following set of principles: respect for human dignity, respect for free and informed consent, respect for vulnerable persons, respect for privacy and confidentiality, respect for justice and inclusiveness, balancing harms and benefits, minimizing harm, and maximizing benefits.

At BCIT, these reviews are carried out by the BCIT Research Ethics Board (REB); it receives applications from researchers, provides advice, and when all requirements are met, approves the projects.

Each research project has a principal investigator, whose overall responsibility it is to establish and maintain ethical practice throughout the course of the project.

One of the most important aspects of conducting research on human subjects is to ensure that participants are recruited in a manner that respects their right to free and informed consent.

As a general principle, openness and honesty are essential characteristics of the relationship between the researcher and the participant. However, it is understood that in some cases, in order to achieve unbiased scientific data, it is necessary and justifiable to engage in concealment or deception. When this occurs, the researcher is obligated, as soon as possible, to ensure that the participant understands that concealment and/or deception has taken place, and why it was necessary.

Participants must be completely free to decline, and to withdraw at any time. This requires special vigilance when the researcher is in a position of power (real or perceived power) over the subjects. Thus the BCIT REB does not permit instructors to recruit their students, nor managers to recruit their subordinates as research subjects.

If you have questions about research ethics, you are encouraged to read the BCIT policy and procedures on research ethics at bcit.ca/appliedresearch/policies or contact Norman Streat, chair of the BCIT REB, at 604.432.8815.

WINNER OF THE BCNET NETWORK BUILDER AWARD

At the recent BCNET Annual General Meeting reception, Dr. Jim Reichert, BCIT's vice president of Research and International, received the BCNET 2007 Network Builder Award. The award was presented in recognition of Jim's several years of support and involvement with BCNET as a volunteer and Board member during a period of rapid growth.

In presenting the award, Michael Hrybyk, president and CEO of BCNET, drew particular attention to Jim's involvement in developing the governance and expanding the operating structures for BCNET.

"BCNET is a tremendous organization of dedicated and highly-skilled professionals providing leading-edge network technology to support education and research in BC. It has been exciting as a BCNET Board member to witness BCNET's success up-close," says Jim. "I encourage BCIT to fully engage and take advantage of the tremendous opportunity that access to BCNET presents."

BCNET is a not-for-profit society formed to provide high-speed optical network capabilities, often called Advanced Networking, to British Columbia's higher education and research institutions, including BCIT. BCNET operates the province's first and only high-speed research and education network: the Optical Regional Advanced Network (ORAN).

A MAP WITH WHEELS

If you've ever tried cycling to BCIT, you know that finding a direct, safe, and reliable route can often be a challenge. Viewing the Metro Vancouver map of bike routes isn't a sure guarantee either, as the bike routes chosen by municipalities might not always feel like the best routes for you. Also, sometimes vehicle accidents make routes less safe—a recent example being when a car accident on Willingdon left the adjacent bike route covered with glass for weeks.

So how can BCIT students, staff, and faculty find quick, safe routes to BCIT? Three researchers at the BCIT Technology Centre have found a way to make this easier. Dr. Ari Goelman, Clay Howey, and Joel Carter are designing a technology to help BCIT bicyclists connect with one another.

When it is completed, users will be able to add and find bike routes and other points of interest on their web browsers and mobile phones. In addition to this, they will be able to receive instantaneous and detailed directions based on routes already entered by other users.

This project is funded by BCIT's Technology Enabled Knowledge (TEK) Initiative fund and by BCIT Prototype Development.

tekinitiative
technology-enabled knowledge

RENEWABLE ENERGY FOR A SUSTAINABLE FUTURE

In collaboration with BCIT's School of Construction and the Environment (SoCE) and the School of Manufacturing, Electronics, and Industrial Processes (MEIP), the Technology Centre's Association of Environmental and Research Economists (AERE) and Renewable Energy Group is establishing applied research initiatives and helping with education programs in the area of renewable energy and sustainable development.

Renewable Energy initiatives are important in BC for three reasons: First, as the world experiences the increasing effects of global warming, the earth's capacity for green house gas emissions is becoming very limited. Second, the international geopolitics requires energy to be produced regionally. Since the fossil fuel resources are limited in BC, the province is forced to use its renewable sources such as: wind, solar, geo-thermal, bio-fuels, micro-hydro, wave, tide, etc. Third, in its recently announced "Energy Plan," the BC government has mandated that 50 percent of the future energy growth will come from conservation and that the province will develop new technologies and solutions to provide clean remote energy and reduce energy losses.

In addition, governments around the world are increasingly supporting and driving legislation, and providing incentives for commercialization to support the development of five renewable energy areas: solar power, wind power, hydroelectricity, biomass, and biofuels.

BCIT's Renewable Energy Group is currently involved in wind power, bio-fuels, and photovoltaic (PV) research activities, having recently developed a new technology for small wind power applications. The group is working on several projects with local companies.

These activities are helping local companies in their research and development efforts as well as transfer of technology and training to their employees. The Renewable Energy Group is also hosting targeted workshops (i.e. Wind Energy) upon which open discussions take place between industry and academia to support further development of cleaner technologies, easily accessed by all British Columbians.

For more information on renewable energy field projects and initiatives, please visit bcit.ca/appliedresearch/re or contact Dr. Mehrzad Tabatabaian at Mehrzad_Tabatabaian@bcit.ca.