



THE
UNIVERSITY OF
BRITISH
COLUMBIA

ingenuity

Faculty of Applied Science
Engineering News

Who's afraid of maybe?

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Lost in the forest of possibilities with Tarzan, Jane and Tim Menzies

Dr. Tim Menzies was appointed Assistant Professor in the Department of Electrical and Computer Engineering last July. He's a self-described cognitive scientist bent on exploring how quirks in human cognition effect the process of software and knowledge engineering.

He holds a Ph.D. in artificial intelligence (1995), a masters of cognitive science (1988) and a computer science undergrad degree (1985), all from the University of New South Wales in Sydney, Australia, not far from his home town of Melbourne.

Before coming to UBC, Dr. Menzies worked with NASA on software testing, where he developed a fascination for the effects of personal opinions (a.k.a. "quirks") on software solutions. Time and again, he witnessed NASA experts, each with their own project needs and opinions, come together to try to create a common software product capable of helping all of them. It wasn't an easy task.

"Suppose you have four scientists in a room with a goal of developing a software product that will help fire the rockets, pilot the shuttle, land on the moon, etc. Each person has a different way of thinking and will approach the task based on his or her needs, knowledge and subsequent assumptions. Quite naturally, this can lead to holes in the information they share and potentially costly bugs in the software."

Dr. Menzies believes that if you uncover these quirks early on—even before software construction begins—you can save a lot of time and money on product development. One solution lies in the use of a programming language called Jane, which searches for compatible solutions based on the kind of basic knowledge you have when you are just beginning a project. Dr. Menzies, along

with colleagues at the Jet Propulsion Laboratory and NASA's Independent Verification and Validation Center in Fairmont, West Virginia, designed Jane to work in conjunction with two other analytical tools called Cheetah and Tarzan.

This is how they work:

In the case of the NASA scientists, Jane would pool together all of the basic project needs and opinions—all of the 'What if we did this?' 'What if we did that?' kind of statements (Dr. Menzies likens it to dropping all of the ideas in a bucket); Cheetah operates in the background to make Jane run through all of the possibilities, searching for workable options based on the ideas input by the scientists; finally, after a period of searching,



Tarzan is deployed to "swing through" and summarize the best solutions based on Jane's analysis.

"My research is about maybe and how one approaches it," said Dr. Menzies. "A lot of people have focused on this using very complex probability theories, fuzzy logic, algorithms, etc., but I started from the point of saying people might not even have enough information for fuzzy logic."

"I felt that software developers needed a tool that works with much less information, just the very basic assumptions

Message

from the Dean

Welcome to the Spring 2001 edition of *Ingenuity*. We are delighted that Martha Salcudean, former Head of Mechanical Engineering, will be receiving an honorary doctorate from UBC in May. This is a very appropriate recognition of her many contributions and accomplishments, and we congratulate her warmly on this honour. We are also very pleased to report that three of our faculty members have been named as holders of Canada Research Chairs (see page 4): John Grace in the Department of Chemical and Biological Engineering, and Babak Hamidzadeh and Tim Salcudean in the Department of Electrical and Computer Engineering. These are prestigious appointments, which attract significant research infrastructure support, further enabling us to recruit new faculty members with complementary areas of expertise.

I would like to make special mention of the role of the Engineering Advisory Council in guiding the activities of the Faculty. The Council has had a major influence on our strategic planning activities, on the development of our research plan, and on a wide range of specific issues facing the Faculty, and it has also served us well through advocacy for the Faculty. Now that the Council has been in place for some three years, its membership is shifting, with some members stepping down and new ones being appointed. Over the last year, Bob Affleck, Doug Fraser, Dan Gelbart, John Haythorne, Doug Horswill, and John MacDonald have stepped down from the Council. We are most grateful to them for their advice and contributions to the Council. At the same time, I am delighted that the following individuals have now joined the Council: Mike Allen, Vice President Engineering, Teck Corporation; Dick Auchinleck, President and CEO, Gulf Canada Resources Ltd; John Bremner, Executive Director and Registrar, Association of Professional Engineers and Geoscientists of British Columbia; Peter Buckland, Principal, Buckland and Taylor Ltd; Denis

Connor, President and CEO, QuestAir Technologies Inc; Harold Copping, President and Chief Executive Officer, Teleflex Canada Ltd; Marilyn Hames, Vice President Technology, Placer Dome Inc; and Fred Kaiser, Chairman and CEO, Alpha Technologies Inc. We look forward to working with the new and continuing members of the Council in furthering the interests of the Faculty.



An ongoing concern relates to the relative size of engineering in British Columbia. While the proportion of engineers making up the labour force and the extent of engineering research and development are key indicators of levels of innovation and productivity growth, and thus of our standard of living and quality of life, the proportion of engineers in British Columbia is low when compared to the rest of Canada. Consistent with this, there is a significant shortfall in engineering enrollments in BC relative to the rest of Canada. Thus in 1998, while the degree production rate in BC relative to the rest of Canada was 82%, in engineering it was only 48%! This disparity will become even more skewed in a few years time, when the massive expansion of engineering taking place across the country, particularly in Alberta and Ontario, gives rise to many more engineering graduates in those provinces. One consequence of this is that there is a large unmet demand in British Columbia for engineering graduates, and an equally high and unmet demand for entry to our engineering programs.

In partial response to this, and in order to address the very critical need for graduates for the high-tech sector, we have proposed a major expansion in BC in areas relating to information and communications technologies. We are pleased that industry is taking up the challenge of advocating for this kind of expansion.

Overall, as the Faculty's 85th year draws to a close, I am pleased that the Faculty continues to demonstrate excellence in all aspects of its operation. As always, I would like to express my sincere appreciation to all faculty and staff of the Faculty of Applied Science as well to our many alumni, friends and partners for their invaluable efforts and support. Please feel free to contact me if you would like further information about Faculty activities or if you have any suggestions to provide.

Michael Isaacson

Michael Isaacson
Dean

Building the best— bottom-up

Dr. Nimal Rajapakse puts together the pieces for success

He wants the best and he's enlisting the help of his Department to get it—so says Dr. Nimal Rajapakse, the new Head of Mechanical Engineering at UBC.

Dr. Rajapakse took up his role in July 2000, after leaving the University of Manitoba where he was the Head of the Civil Engineering Department.

"I came to UBC for its outstanding reputation—within Canada and internationally," said Dr. Rajapakse. "I was impressed by previous interactions with the University, so when the opportunity arose to come here, I took it. Everything I have seen and experienced in the last eight months confirms that I made the right decision."

Dr. Rajapakse firmly believes that now is good time to be a Department Head at UBC, particularly in light of renewed interest in post-secondary education by the provincial and federal governments through initiatives such as the Canada Research Chairs Program and the Canada Foundation for Innovation.

This support ties into Dr. Rajapakse's goal of maintaining a positive working environment for all members of the Department. "My main goal is to provide the best working environment for faculty, staff and students. Once you have that environment and you support it, I believe

people will succeed and others will be attracted to it," said Dr. Rajapakse.

"At the moment, we have an excellent group of well-established, senior faculty, as well as many young faculty members with a lot of promise. I see it as my job to encourage these younger members, to provide them with the support they need so that in five to 10 years they will become our next generation of leaders."

Dr. Rajapakse understands that creating the environment he envisions will take a strong commitment on his part. "As the Department Head, I have to take the lead; I have to be a mentor, a facilitator, a consensus builder, and above all, a good listener," he explained. "Fortunately, I'm surrounded by people willing to share their advice and experience. Former Department Heads Bob Evans and Martha Salcudean and my immediate predecessor Professor Dale Charchas, as well as Professor Ian Gartshore and Dean Michael Isaacson have all been very encouraging. In addition, Faro Sassani, Sheldon Green and Gary Schajer have been providing excellent assistance to me."

In early February, the Department participated in a strategic planning retreat where more than 90% of the



Department's faculty members took time to define future directions and aspirations. "As a result of this retreat, we plan to move forward using a bottom-up approach, recognizing that it is the front line people, often faculty and staff members, who must attend to the details and be the implementers of change," reflected Dr. Rajapakse.

With faculty and staff in mind, Dr. Rajapakse hopes to regularly meet with them and use their feedback to keep their work exciting and challenging. "Specifically, I want to promote career development and provide opportunities for staff to keep pace with technology, which is important to the overall delivery of teaching and research programs. We want to develop an effective mentoring program for new faculty. We want to move forward with the rest of UBC and Trek 2000 tells us where UBC is heading."

When it comes to students, Dr. Rajapakse says the Department plans to follow Trek 2000 and use a learner-centered approach in the

undergraduate program by developing an integrated and interactive presentation of the fundamentals of Mechanical Engineering in the second-year, with the goal of having students apply their integrated knowledge of fundamentals in design problems in third and fourth year.

Despite his ambitious plans, Dr. Rajapakse is determined to maintain his teaching and research activity. His current research focuses on theoretical and computational modelling of smart materials. Currently, he is teaching a second-year course, Mechanics of Materials, which puts him in contact with a variety of students. "I enjoy getting to know students early on, when they are still just discovering what mechanics is all about." According to Dr. Rajapakse, teaching these students—combined with the job of being Department Head—provides a very rich and challenging experience, which clearly, he is more than up to.

Keeping the best & leading the way

Canada Research Chair Program advances engineering research

Attracting and retaining the best researchers, encouraging graduates to remain in Canada, and supporting the next generation of leaders are among the ambitious goals of the new Canada Research Chairs Program announced by the Federal Government in its 2000 budget. Under the new program, the Government has committed \$900 million to support the creation of 2,000 research chairs in Canadian universities by March 2005.

The Program supports two types of Chairs: Tier I (seven-year renewable Chairs targeted at experienced researchers acknowledged by their peers as world leaders in their own fields) and Tier II (five-year Chairs, renewable once, targeted at researchers acknowledged by their peers as having the potential to lead in their fields).

To date, three chairs have been awarded to engineering professors in the Faculty of Applied Science at UBC: Chemical & Biological Engineering Professor John Grace, and Electrical & Computer Engineering Professor Tim Salcudean and Associate Professor Babak Hamidzadeh.

Dr. Grace's research aligns well with UBC's focus on the environment and sustainability. It involves a mix of fundamental and applied research aimed at preventing climate change and reducing pollution through development of sustainable environmentally friendly energy processes.

"On the fundamental side, our research examines a number of processes involving solid particles. One example involves improvements in the ability of calcium-based sorbents to capture and retain sulphur emitted during fluidized bed combustion and pro-

duction process. Our work is helping to reduce the amount of limestone needed, thereby lowering costs, reducing the amount of material to be sent to landfill sites and cutting back on carbon dioxide (greenhouse gas) emissions to the atmosphere," said Dr. Grace.

"On the applied side, we're looking at both new and improved energy processes, including an exciting new way to produce hydrogen from natural gas," explained Dr. Grace. "Our process may fill the need for an efficient, sustainable energy source. This could have wide applications for the fuel cell industry as well as many other processes where hydrogen is needed."

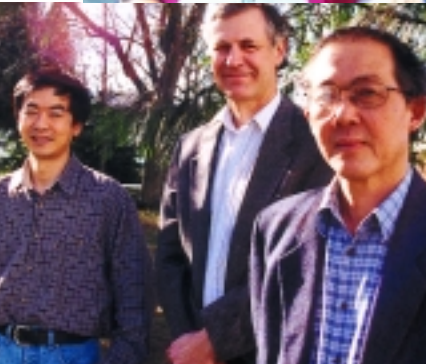
Dr. Grace is quick to emphasize that his research is a group effort involving Chemical & Biological Engineering Professors Jim Lim, Tony Bi, Paul Watkinson, Bruce Bowen, and Emeritus Professor Norman Epstein, as well as many graduate students, several post doctoral fellows and research employees. His industry partners include Syncrude, Mitsubishi Chemical Corporation, Cominco and Alstom Power.

An equally exciting collaborative effort is underway in Electrical & Computer Engineering. Dr. Tim Salcudean specializes in developing haptic interfaces that allow computer users to feel and apply interactive forces while manipulating remote or virtual environments. His work, which is part of UBC's Microelectronics and Information Technology research theme, has promising applications in surgery and medical diagnosis and the remote operation of machinery in the construction and resource industries.

With the support of the CRC Program, Dr. Salcudean and his team of graduate students will build on their existing research by incorporating deformable tissue models in interfaces for medical applications such as anesthetic delivery and biopsies. They will also explore and evaluate new multi-modal user interfaces that combine the senses of sight, sound, touch, and motion.

"Creating these will be challenging because the technical

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From top: Canada Research Chairholder Associate Prof. Babak Hamidzadeh; Prof. John Grace (center) with colleagues Assistant Prof. Tony Bi (left) and Prof. Jim Lim (right); Prof. Tim Salcudean (centre back) with his graduate students, left to right, back row: Julian Guerrero, Keyvan Hashtrudi-Zaad, Daniela Constantinescu, Simon DiMaio and Rudy Six; front row: Simon Bachmann, Purang Abolmaesumi and Shahin Sirospour.

New IT Minor equals opportunity for engineering students

If you had just a little bit of training, or some inside knowledge of computer programming and information technology, couldn't you do your job even better? You could probably make better use of tools such as computers, apply your knowledge to other areas of expertise, and better understand the systems people when they explain the intricacies of the department database.

This was the thinking behind the creation of the new Minor in Information Technology (IT) in the Faculty of Applied Science at UBC. Starting in May 2001, all engineering students not already enrolled in information technology programs such as Computer Engineering, Electrical

Engineering or Engineering Physics (Electrical and Computer Options), can improve their computer-related skills by considering the IT Minor in their third year of study.

IT is a rapid growth industry that has an impact on virtually all other industries worldwide. "Students who pursue the IT Minor will not replace people professionally trained in this area, but they will gain some programming and computer systems skills and therefore be open to more career opportunities than they would have otherwise," explained Faculty of Applied Science Associate Dean Bruce Dunwoody.

"The defining characteristic of the current labour market is a shortage of people with both computer-related skills as well as technical qualifications," observed Dr. Dunwoody. "Engineers with even a little knowledge of programming and computer systems as well as technical skills in another field are in high demand as they have the ability to apply their computer skills to their industry of choice."

Students who enroll in the Minor will gain an understanding of information technology on three levels: hardware, software (programming), and systems. The information they acquire should allow graduates to work knowledgeably with information technology pro-

fessionals to resolve problems and be effective team players in the work place.

"The IT Minor was launched in response to student desire for more training in computer technology, as well as a perceived industry need for graduates with this skill set," explained Dean Michael Isaacson. "It has been guided by the principles of Trek 2000, which call for interdisciplinary programs and interactive learning."

For more information on the Minor in Information Technology, contact Engineering Student Services at (604) 822-6556.

Keeping the best and leading the way

Continued from page 4

requirements are much greater," said Dr. Salcudean. "It will, however, allow us to come up with new applications and continue to attract very bright students, contributing positively to our research environment."

Dr. Salcudean is part of a much larger UBC group focused on robotics-related research. He credits much of his success to a productive history of collaboration with Electrical & Computer Engineering Professor Peter Lawrence. He has also collaborated and co-supervised graduate students with Jim McEwen, an Adjunct Professor in Electrical and Computer Engineering, with Mechanical Engineering Professors Faro Sassani and Elizabeth Croft and with Computer Science Professor Dinesh Pai.

Electrical & Computer Engineering Associate Professor Babak Hamidzadeh specializes in interactive multi-media. His work encompasses all aspects of multi-media from composition and creation of content, to storage, retrieval, delivery/transmission, presentation, and eventually, manipulation—all via the computer.

"When most people think of interactivity, they picture manipulation of existing content. An example of very basic interactivity might be pausing and fast forwarding a video

segment or maybe making selections from options on a DVD," explained Dr. Hamidzadeh. "What we're looking at is way beyond that; it involves allowing users to create new content using existing pieces. In other words, using your computer, you could create a whole new ending for your favourite movie and the changes in the plot and character dialogue would happen in real time."

This work has exciting applications for anyone interested in facilitating human-computer interaction, or human-to-human communication through the computer, such as people in the movie industry, education, or games and entertainment.

Backed by the support of the new Chair, Dr. Hamidzadeh and his graduate students will be able to advance their work in both the creation and manipulation of content, furthering the potential applications and broadening industry appeal.

The Canada Research Chairs Program is administered jointly by the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC), the Social Sciences and Humanities Research Council (SSHRC), and the Canada Foundation for Innovation (CFI). For more information on the Program and Chair holders, visit www.chairs.gc.ca

Development

As the end of the 2000/2001 fiscal year approaches, we are inspired to note that alumni and corporate friends are demonstrating wonderful loyalty and support for the Faculty of Applied Science. As of January 31, a total of 2,035 donors (1,870 alumni and 49 corporations) gave \$3,476,874 to the Faculty during 2000/2001— which placed us as the top Faculty on campus for receiving external support so far this year.

Ongoing annual support — in response to the form posted in *Ingenuity*, or to the annual letter mailed from the Dean — allows the Faculty to enrich the learning environment for students. We also have been successful in attracting funds for specific large projects, which will enable the Faculty to build upon areas of strength. For instance, by attracting funds to support the Engineering Physics Program, clean energy research, and building science and enclosure design, the Faculty is strategically enhancing its teaching and research in these targeted areas.

As the level of external support is increasing, we are acutely aware of the responsibility and obligation to ensure that these funds are used wisely. Increasingly, we are interacting with our alumni and corporations, through events, co-op, mentorship, graduate employment, research partnerships, industrial visits, classroom involvement, and advisory committees. We are reporting on our plans, activities and accomplishments and are receiving advice and feedback. This is having an immense impact on the Faculty’s development and in the mapping of its priorities, which in turn play a key role the designation of our resources.

We extend our sincere appreciation to all of our supporters and we invite new donors to join us in our efforts and to enjoy the sense of accomplishment and public recognition that such involvement garners — for yourself, in honour or memory of others, or for your company.

Yes, I would like to support the Faculty of Applied Science

Name _____

Address for tax receipt _____

- I would like to make a tax-deductible donation of \$ _____, which will be directed to the *Faculty of Applied Science Endowment Fund for Student Support*. (Please make cheque payable to “The University of British Columbia”.)
- I would like my gift to be ___ undesignated/ ___ directed to the following program:

<input type="radio"/> Chemical & Biological Engineering	<input type="radio"/> Integrated Engineering	<input type="radio"/> Co-operative Education Program
<input type="radio"/> Civil Engineering	<input type="radio"/> Mechanical Engineering	<input type="radio"/> Minor in Commerce
<input type="radio"/> Computer Engineering	<input type="radio"/> Metals & Materials Engineering	<input type="radio"/> Combined Arts / Engineering Program
<input type="radio"/> Electrical Engineering	<input type="radio"/> Mining & Mineral Process Engineering	<input type="radio"/> Minor in Information Technology
<input type="radio"/> Engineering Physics		
<input type="radio"/> Geological Engineering		
- I would like my gift to remain anonymous.
- I would like the Faculty’s Development Officer to contact me (phone and/or e-mail address: _____) to discuss:

<input type="radio"/> support for a named Chair or Professorship	<input type="radio"/> the tax advantages of gifts of securities
<input type="radio"/> a planned gift	<input type="radio"/> support for a named infrastructure project
<input type="radio"/> a gift-in-kind	

Please return to:

Business and Development Office
Faculty of Applied Science
The University of British Columbia
2006 - 2324 Main Mall
Vancouver, BC V6T 1Z4

Tel: (604) 822-8335
Fax: (604) 822-0688
e-mail: development@apsc.ubc.ca
web: www.apsc.ubc.ca/development

Suncor Energy Foundation supports clean energy research

In October 2000, the Suncor Energy Foundation made a generous donation of \$300,000 to establish the Suncor Energy Foundation Clean Energy Laboratory. “The new lab will equip UBC researchers with the facilities necessary to produce research of great benefit to the community as we all work together to reduce emissions,” said Gerry Manwell, Suncor Energy’s Vice-President, Alternate Energy Business Development. Support for the lab is just one example of the Suncor Energy Foundation’s commitment to developing clean energies.

The Foundation is solely funded by Suncor Energy Inc. Suncor is an active supporter of programs that address environmental issues of major national and local concern—issues such as sustainable development, global climate change, air and water quality, land and forest conservation, and ecological rehabilitation.

The Laboratory is a key component of the new UBC Clean Energy Research Centre. Mechanical Engineering Professor and Centre Director Dr. Bob Evans is confident that the new facility will bring together researchers from different

disciplines at UBC to explore clean energies and develop new technologies to reduce emissions. Dr. Evans anticipates that the research conducted in the Laboratory will have an immense impact on technologies related to clean energy and will help develop clean sources of energy for the future. “We are grateful to the Suncor Energy Foundation for its support of this globally significant initiative and look forward to working with them in reaching our common objectives,” said Dr. Evans.

To find out more information about the Clean Energy Research Centre, please contact Dr. Evans at (604) 822-3485 or evans@mech.ubc.ca



SUNCOR
ENERGY
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Alumnus James McEwen issues a challenge to improve the student experience

In a wonderful display of alumni support, Dr. James McEwen (BASc Electrical '71; PhD Electrical '75) recently donated \$50,000 to establish the Electrical and Computer Engineering Alumni Fund—and offered it as matching funds for other ECE alumni donations. “A significant number of alumni have since come forward to make their own donations towards the Fund and we are pleased to report that the match was fully utilized,” said Faculty Development Officer Mona Miller-Tait.

“For me and for many fellow ECE alumni, our education at UBC allowed us to ‘do good while doing well’ in our careers. The ECE Alumni Fund is our way of helping others to experience the quality educational experience that we enjoyed,” said Dr. McEwen. The new funds will be directed to a project that enhances the student experience. Dr. McEwen holds many patents for medical devices that have been successfully commercialized and are now used around the world on a daily basis. He remains involved with several medical device development and manufacturing companies and has served on a number of corporate and non-profit boards.

Alumnus Dr. Ralph Carter pays tribute to professors

“When Frank Forward told me I was getting \$400, I walked on water,” said UBC alumnus Dr. Ralph Carter (BASc '48 Metallurgy, MASc '49). Fondly recalling the day his Mining Engineering Department Head told him he would receive scholarship funding, Dr. Carter is today planning the terms of a new scholarship that he has established. “My intent with the creation of *The Faculty Memorial Scholarship in Extractive Metallurgy* is to acknowledge the many fine instructors of the Class of 1948,” he emphasized.

In the years since his graduation from UBC, Dr. Carter has enjoyed a varied and successful career—much of which he credits to UBC, and particularly his professors, who played an important role in his training as an engineer. Looking back, some of his achievements really stand out: “I made Canada’s first metallic plutonium [while working for Atomic Energy of Canada in Chalk River] and I’m still alive!” he joked.

Dr. Carter left Atomic Energy to work with Dennis Richardson, Fellow of the Royal Society, in London, England, where he completed his Ph.D. Following this, he was employed at the Mines Branch of Canada for two years before moving on to research and development for General Electric in New York. He worked at GE for 33 years and today he is enjoying retirement with his wife in Spokane, Washington.

This is the second scholarship that Dr. Carter has established. Several years ago, he and his sister, Ruth Byers, established *The Leslie and Greta Carter Memorial Scholarship* in the memory of their parents.

Alumni update

Reunion highlights—September 29 — October 14, 2000

In the fall/winter 2000 issue of *Ingenuity*, we promised to share with you the highlights of some of the exciting alumni events that took place between September 29 and October 14, 2000.

“Being a part of these events was one of the most exciting and rewarding experiences of my job,” said Faculty Alumni Relations Officer May Cordeiro. “The success of many of these events is owed largely to Dean Michael Isaacson who, in his endeavours to promote alumni activities, hosted reunions for the BASc classes of 1950, 1960 and 1970.” Reunion guests included alumni from places as far as Spain, as well from various places outside BC and the lower mainland.

Making the reunions happen was truly a group effort. Special thanks are owed all of the staff and volunteers who offered assistance, including: UBC Alumni Association Reunion Coordinator Jane Merling; Faculty Communications Officer Laurie Dawkins; and class volunteers Bryan Quinlan and George Storey (CIVL'50), Mark Bradwell (ELEC'50),

Ken Harris (GEOE'50), Charles Russell (MECH'50), Charlie Morrison (MECH'55), William Tuff and Les Pritchett (Metallurgy'50), Don Codville (Mining'50), Keith Turnbull and Paul Wiebe (CIVL'60), Charles Turner and Walter Kilik (MECH'60), Don Brown (ELEC'79), Bruce Der (CHML'75) and Gordon Becker (MECH'70). Collectively, this group's active involvement and assistance made our Applied Science reunions successful and memorable experiences.

The events kicked off with a luncheon hosted by Dean Isaacson at the Asian Centre, which was attended by approximately 150 alumni and guests. Some of our alumni had not returned to UBC since graduating in 1950 and were thrilled to have this opportunity to visit campus, meet old friends and share some memorable moments together.



Above: Guests listen to a welcome address by Dean Michael Isaacson.

The year 2000 was a special one for our graduating class of 1950. As part of the UBC Alumni Day celebrations, the class was treated to a reception in the Civil and Mechanical Engineering Building. The reception provided alumni and guests the opportunity to meet Associate Dean Guy Dumont, the Engineering Department Heads and other faculty members. Following the reception, student representatives escorted guests to various engineering buildings and exhibits.

Left top: Alumni enjoy the opportunity to meet with current faculty members to update themselves on current activities on campus

Left: Mike Georgallis from Mechanical Engineering talks to guests about the construction of the UBC Human Powered Helicopter, a project involving students from several engineering disciplines.



Right: Twenty-three graduates from ELEC'50, and their guests, gathered to share some memories at a wine and cheese reception hosted by classmate Mark Bradwell, and his wife Ann.



Above: The Mechanical Engineering Class of 1950 celebrated their special reunion with a dinner at Cecil Green Park.



Left: CIVL'50 graduates and their guests celebrated their milestone anniversary with a baron of beef buffet at Cecil Green Park. Civil Engineering Department Head Alan Russell updated guests on the current activities within the Department.



Left: This energetic group from the Metallurgy and Mining classes of 1950 held a three-day reunion, which included a dinner and a trip up Grouse Mountain.



The happy bunch from the Mechanical Engineering class of 1960 reminisce about the "good old days" at a wine and cheese reception at Cecil Green Park.

Upcoming 2001 Faculty events and class reunions

Faculty Events

Toronto alumni and friends reception	Thursday, May 10
California alumni and friends reception	Thursday, June 14
Edmonton alumni and friends breakfast	Thursday, June 28
Calgary alumni and friends reception	Thursday, June 28
EECE 70-90 classes salmon barbecue	Thursday, July 26
EECE 91-00 classes brunch	Saturday, August 11
Washington State alumni and friends reception	Thursday, September 6
BASc class of 1951 lunch	Friday, September 28
BASc class of 1951 reception & tour	Saturday, September 29
BASc class of 1961 reception	Monday, October 1
BASc class of 1971 reception	Friday, October 5

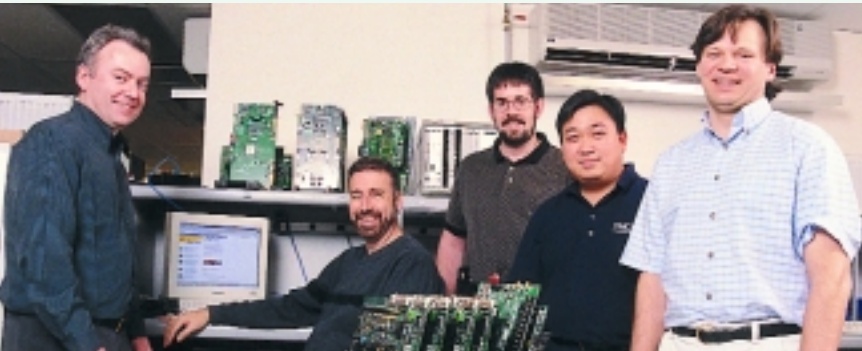
Class Reunions

BASc'71	Friday, October 5
CHML'66	May 18-20
CIVL'51	September 19-20
CIVL'61	September 29
MECH'51	Details TBA
MECH'76	Details TBA
Metallurgy'61	Details TBA

Further details about each of the events will be posted on the Faculty web site at www.apsc.ubc.ca/alumni and forwarded in the summer. In the meantime, if you would like information on how you can get involved, please contact our Alumni Relations Officer May Cordeiro by phone (604)822-9454, fax (604) 822-7006 or email at mcordeiro@apsc.ubc.ca

Over \$1 million for Engineering Physics

Engineering alumni remember their roots with professorship in communications and networking



PMC-Sierra Professorship founders, from left to right: Kevin Huscroft, Colin Harris, Curtis Lapadat, Alex Chiu, and Iain Verigin.

As a result of the efforts of Iain Verigin (BASc Eng. Physics '89) and his wife Sue Wisener, a remarkable endowment in support of Engineering Physics has been established by several alumni working at PMC-Sierra Inc. Donors include Curtis Lapadat, Colin Harris, Iain Verigin, and Alex Chiu, all of whom are Engineering Physics graduates, and Kevin Huscroft, who is a graduate of Electrical and Computer Engineering.

The endowment will support the *Engineering Physics Professorship in Communications and Networking* and includes a corporate match from PMC-Sierra and a match from UBC. Colin Harris and Kevin Huscroft (who had both previously provided significant donations in support of the PMC-Sierra Founders' Awards), were instrumental in ensuring that PMC-Sierra Inc. provide a corporate match, which, once doubled by the University match, has resulted in a sizable fund for an endowed Professorship.

The Professorship's founders are among the Faculty's most successful and generous graduates—collectively, they are hard-working, dedicated professionals and respected community leaders. Some of them have chosen to describe their motivation in giving back to the University in their own words.

Iain Verigin *Director of Product Strategy*
UBC Degree: BASc Eng. Physics 1989

"In my daily work, I run into many ex-professors who now work in industry. I've come to understand how difficult it is for universities to retain good professors," said Iain. "Given the fact that I was not a scholarship recipient myself, I also felt that a professorship/chair would benefit a wider range of students than a scholarship alone."

During his time at UBC, Iain participated in all aspects of University life. He has fond memories of playing for the EUS hockey team, particularly during the team's near perfect year when they lost only one game!

Curtis Lapadat *Director of Product Engineering*

UBC Degree: BASc Eng. Physics 1990

"The UBC Engineering Physics program prepared me well for a career in the semiconductor communications industry. I have been fortunate in being able to grow with a successful local high-tech company, rather than having to go East or South to pursue my interests," emphasized Curtis. "By contributing towards this Engineering Physics Professorship, I hope to further strengthen this excellent program, help other students prepare for a leading-edge career in semiconductor communications, and enhance the future of our local high-tech industry."

Colin Harris *Vice President of Integrated Circuit Technology*

UBC Degree: BASc Eng. Physics 1980

"The Engineering Physics program is unique in that students are exposed to a wide variety of engineering and scientific problems. This Professorship will ensure that students are able to apply their knowledge to problems in the growing networking field," said Colin.

He has worked in the semi-conductor industry since graduation, and in his current role he is responsible for bringing in new technologies and tools for Networking Integrated Circuits. Colin holds five patents relating to microchips and he is active in the Fabless Semiconductor Association, where he is the Chair of its Technical Committee.

Alex Chiu *Product Engineering Manager*

UBC Degree: BASc Eng. Physics 1990

"I donated towards the Professorship because I wanted to see more Engineering Physics grads working in the networking IC [integrated circuit] field. I believe that this is one of the fastest growing segments in the industry and the Engineering Physics program creates new grads that are well versed in many of the challenges in this industry," reflected Alex Chiu. "The Professorship will help guide and expose Engineering Physics students to the networking IC industry."

After graduating from UBC, Alex worked at Northern Telecom (now Nortel Networks) until 1994, when he returned to Vancouver to join PMC-Sierra, as a Test and Product Engineer. Today Alex is the Product Engineering Manager for PMC's Access Products Division.

The Engineering Physics Professorship in Communications and Networking will have tremendous impact on the Faculty, enabling it to direct more funding towards Engineering Physics, ultimately enhancing the Faculty's ability to recruit and retain outstanding faculty members in this area. The Professorship also furthers the Faculty's close relationship with PMC-Sierra Inc., which employs over 1,700 people worldwide.

University-industry partnership tackles building envelope education

In an effort to build on existing strengths at UBC and help prepare tomorrow's architects and engineers for challenges in modern design and construction of building envelopes, the Faculty of Applied Science recently announced the new Polygon Adjunct Professorship in Building Science. The Adjunct Professorship will be responsible for making links with the activities and research of professionals in the BC building industry.

The project is funded by a three-way partnership between UBC, Polygon Homes Ltd., and Forintek Canada Corp. Both industry partners have been active in the building industry, helping to seek solutions to the

envelope failure issue affecting so many BC homeowners. Through this Adjunct Professorship, they hope to address an important gap in training for current and future design professionals through better technical education and research at the university level.

"We saw an excellent opportunity where we could partner with UBC and help build its research and teaching capacity in an area of importance to the development industry. It's a good investment," said Michael Audain, Managing Director, Polygon Homes Ltd.

"We're pleased to join forces with Polygon, one of BC's largest home builders,

in tackling some pressing issues of interest to the Canadian forest products industry – that is, improving the use of wood by building industry practitioners," said Ian de la Roche, CEO, Forintek Canada Corp.

In order to establish the Adjunct Professorship, Polygon donated \$135,000 and Forintek provided \$60,000. Within the Faculty, the units leading this initiative are Civil Engineering and the School of Architecture, but links have also been forged with the Department of Wood Science in the Faculty of Forestry.

"The creation of this Adjunct Professorship marks a commitment to help address some of the daunt-

ing challenges facing the building industry," emphasized Dean Michael Isaacson. "We now have the resources in place to start meeting the education and research needs of industry, and to help guide practice and policy development for government."

Polygon Homes Ltd. is a Vancouver-owned and operated company. Since its inception in 1980, Polygon has built more than 9,500 homes throughout the lower mainland. Forintek is Canada's wood products research institute and has a long history of supporting education and research programs at various Canadian universities, including UBC.

Producing future leaders

Philanthropist Thomas Simons supports undergraduate development



As an active member of the Faculty's Engineering Advisory Council, which meets bi-annually to provide advice to the Dean and Department Heads on engineering programs, Tom Simons recently established a unique fund to support undergraduate program development.

To help build the best skill sets for engineers, Mr. Simons directed the fund in support of project-based learning, which emphasizes an integrated understanding of engineering principles and develops abilities in design-based application. Other areas of interest to Mr. Simons include business and engineering, project integration, interdisciplinarity, and engineering design. His gift of \$100,000 will provide the Faculty with the resources necessary to greatly enhance the undergraduate program in all of these key areas.

As a graduate of Washington State University's Mechanical Engineering Program and a successful professional, Mr. Simons is keenly aware of what industry and employers look for in engineering gradu-

ates. His career in the engineering industry has spanned 45 years, including 30 years at the helm of family-owned Simons International Corporation. Under his leadership, the company underwent tremendous expansion, increasing the size of its operation, extending its geographical boundaries on a global scale, expanding the scope of services to the pulp and paper industry, and diversifying the industries served to include mining, oil, consumer products and specialty chemicals.

In 1999, the firm was sold to AGRA, which was merged with AMEC a year later. Mr. Simons remains deeply committed to the engineering profession, the economic growth of British Columbia, and the role that education plays in the province's economic well-being. "As engineers drive innovation, it is essential that engineering programs have the resources necessary to develop programs that will produce tomorrow's future leaders," he said.

"Tom has provided us with critical feedback and advice over a wide range of topics," reflected Dean Michael Isaacson. "I am indebted to him for his strong support of, and involvement with, the Faculty."

Right place, right time

Co-op student Marnie Williston seizes the moment

Some might pale at traveling more than 6,000 miles to become the first foreign employee of a Japanese company, spontaneously acting as an intermediary to the United Nations, or leading 200 people in *Rudolph the Reindeer*—in Japanese—at a company Christmas party, but fourth-year engineering co-op student Marnie Williston has taken it all in stride.

Originally from England, where she left high school after grade 10, Marnie came to Vancouver in 1994 and began pursuing a variety of work opportunities in social services. Eventually she took the advice of her friend and mentor, Lois Kelly, and completed grades 11 and 12 at Douglas College before applying to UBC.



Marnie takes time out to enjoy Bon Odori dancing at the Three-Generations Festival during her co-op term in Japan.

Today she's in the fourth year of a five-year program in Chemical & Biological Engineering and Honours Chemistry. She's in the top five percent of her class and this year alone, was awarded three scholarships.

Marnie completed her first three work terms over an 11-month period in Japan with the Taiheiyo Cement Corporation. She was the first foreign employee ever hired by the company, but that only added to the richness of her experience. "On my first day, my supervisor asked me, 'What do you want to do while you're here and what do you need to make it happen?' I was amazed at their kindness and generosity.

"During my time there, I worked on two major projects. The first involved work with a mechanism designed to prevent oxidation of heavy metals during the cement manufacturing process. The second project looked at viable applications for a new cement additive. Both projects involved a lot of lab work, report writing and presentations. It was a wonderful experience," Marnie explained.

After learning of her interest in connecting with Japanese high school students, Marnie's supervisor arranged for her to meet a local English teacher. What began as a one-time visit, soon led to an on-going arrangement when Marnie

was invited to take over the Monday morning class. Instructing the students in English and fragmented Japanese, she and the students explored the differences in their two cultures and discussed career opportunities in science and engineering.

In a round-about way, it was one of these career discussions that led to Marnie and a group of students visiting the United Nations University in Tokyo, where she sat in on a discussion about the Zero Emissions Research Initiative (ZERI) and eventually became the "go-between" person for a UN representative interested in toxic waste incineration in cement kilns and the executives of the company she worked for.

"At the time, Taiheiyo was the second largest cement company in the world. The UN people knew of it, but had never had any significant interaction. When I mentioned that's where I worked, they were very interested. I guess I was in the right place at the right time," said Marnie. "Pretty soon I found myself acting as the middle person, forwarding e-mails to and from my boss and the UN contact. It was amazing and intimidating at the same time—I was terrified of making a spelling mistake in my messages!" she joked.

"The whole experience seems surreal now, but it proved to me how small and accessible the world is, and how, with the right contacts, education and attitude, you can help change the world. Through co-op experiences like this one, I've come to believe that there are a lot of possibilities out there."

Marnie's most recent co-op term with NORAM Engineering and Constructors again broadened her view on career possibilities. While dividing her time between fieldwork, lab experiments and presentations at the downtown office, Marnie found herself surrounded by intelligent and creative people willing to share their time and advice.

"Working for NORAM was exciting. Employees have the rare opportunity to help design new equipment and put engineering principles to work in new ways that were economically and environmentally sound," enthused Marnie. "I could see myself involved in this kind of work long term."

For the moment, however, Marnie is still undecided about her career. "My ideas keep changing, and I suspect that what I do will depend on timing, on what opportunities present themselves when I graduate." That may be true, but one thing is certain, when these opportunities do arise, Marnie Williston won't let them pass.

Engineering students sweep top spots in skills competitions

Reprinted in part from UBC Reports, courtesy of staff writers Bruce Mason and Andy Poon

“Engineers rule the world”—the traditional cry of generations of UBC engineering students was never more true than in the past six months when three different student engineering clubs earned first place finishes in three prestigious, skill-based competitions.



UBC's Human Powered Submarine—prepped and ready for competition.

Human Powered Submarine Contest

First it was the annual Human Powered Submarine Design Contest in San Diego, California, where UBC students boasted the fastest vehicle in the two-person, propeller-driven class with a winning speed of 3.066 knots (5.7 kilometres per hour).

The contest, sponsored by the American Society of Mechanical Engineers, encourages students to apply engineering theory to practice. Fifteen UBC Mechanical Engineering students poured nine months of their free time into work on the submarine—four months on design and five months on manufacturing the sub.

“The reason we back this as a Department is because of the design and organiza-

tional experience that the students get,” said Mechanical Engineering Professor Sander Calisal, the team's faculty adviser. “We supervise them, but everything is up to them—they go from step zero to step 100, they organize the travel, the budget, everything. They do all the work and they deserve all the credit.”

The team's winning design consisted of a 3.6-metre fibreglass and resin hull encasing an aluminum space frame. The vessel was propeller-powered by an operator pedaling in the rear of the submarine while another steered the boat. The operators were completely submerged in water and had to wear scuba gear to run the sub.

Construction of the 2001 submarine has already

begun. Learning and innovation remain a primary focus of this year's team, along with attaining a 5.5-knot speed capability for the sub. In addition, the team hopes to expand its efforts at public awareness by participating in public demonstrations, providing a display for Science World, and making visits to local high schools.

Great Northern Concrete Toboggan Race

Just last month, another group of students moved from waves to slopes of snow to capture a stunning first place finish in Canada's largest Civil Engineering student competition, the 27th annual Great Northern Concrete Toboggan Race.

UBC students bested 28 teams from universities across Canada, the US and Germany to earn awards for Top Speed of the Day and Most Improved Team, as well as the Overall Champions trophy.

The results were an amazing improvement over the team's last place finish in the 2000 competition. Fourth-year Civil Engineering

students and team captains Brad Tangjerd, Radya Rifaat and Mana Arabi, attribute the success to their group's enthusiasm and strong sense of teamwork, which allowed them to reach a top speed of 46 kilometres per hour during the race and shine through the other judged categories on design, aesthetics, safety, theme, team spirit and ingenuity.

“The essence of engineering is to conceive, create and use objects and this flagship competition is an excellent test of student skills,” emphasized Civil Engineering Department Head Alan Russell. “We're delighted, not only with the results, but also with the enthusiasm and camaraderie they brought to a major competition.”

CIM Mining Games

After conquering sea and snow, engineering students in Mining and Mineral Process Engineering (MMPE) declared victory underground by securing

Continued on page 14

Concrete Toboggan team members with their winning sled, left to right, back row: Mark Crabtree, Grayson Doyle, Tom Furst; middle: Brian Lee, Mac Bell, Shabnam Hosseini, Richard Savage, Brad Parker, Chris Meisl, Brad Tangjerd, Scott Wallace; front: Mana Arabi, Radya Rifaat, Danielle Doran.



Engineering students sweep top spots...

Continued from page 13

their second win in three years at the 11th annual Mining Student Games in Halifax, NS, in late February.

The Games are sponsored by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) and this year attracted teams from nine universities. Teams consist of 12 students who must compete in 17 different categories that test both theoretical knowledge and practical, hands-on skills. For example, in the mine drainage event, two students were called upon to determine the amount of time it would take for a

pump to drain a tank. The students were given the tools to measure the tank and the pump specifications. After allowing an hour for calculations and problem solving, judges turned on the pump and marked students based on accuracy and methodology.

“Our students were enthusiastic, technically outstanding and extremely hard working in a very competitive environment,” said MMPE Department Head Malcolm Scoble. “They were a tremendous credit to the Department and the University.”

The 2002 Mining Games will be in Vancouver, providing the Department a unique opportunity to act as host to more than a hundred visiting students and faculty members, and to build

bridges between Canada's best mining schools.

Congratulations to all of our engineering student competitors, for their outstanding performance in these and other engineering competitions in 2000/2001!

The UBC team celebrates their surprise victory at the 11th annual CIM Mining Student Games in Halifax, NS. Team members include: Brian Atwell, Roch Girard, Pavel Zraly, Marjorie Colebrook, Leslie Lewis, AJ Gunson, Tad Crowie, Aaron Fleming, Matt Pierce, Rob Chu, Jake Zwaan, and Chris Auld.



Who's afraid of maybe?

Continued from page 1

and opinions of a group of people. This is valuable at a point in society where just getting busy co-workers in a room together for half an hour is a triumph. People in this situation don't have time to work out precise mathematical details. Using Jane, I assume that there are holes in what they're saying, that there are a lot of maybes. To some people, this is a scary prospect, but I'm interested in what maybe means to each individual.”

Dr. Menzies' research has very practical applications in lightweight modeling, which is essentially, very quickly designed software. It is particularly useful for “.com” companies and other software organizations who want to reduce development costs while still producing reasonable quality software under tight deadlines. Lightweight modeling and analysis are the subjects he's currently teaching to third and fourth year students at UBC. So far, he's been impressed by the high quality of student work and with the Faculty's focus on software engineering.

“The students at UBC are great,” emphasized Dr. Menzies. “The work they are producing, even at the undergraduate level, is really amazing. That alone makes UBC enjoyable, but I was drawn here initially by the Faculty's new

emphasis on the Software Engineering Option. Working with other members of the Department as well as faculty members from Computer Science, such as Dr. Holger Hoos, I hope to help grow that to a full degree program.”

When he's not teaching or putting Tarzan, Jane and Cheetah through their paces, Dr. Menzies and his partner Helen Burgess, spend time enjoying life in Vancouver.

“I think we're still decompressing since arriving here from West Virginia. We're finding Vancouver to be a lot like Sydney with the same cultural mix, sushi to burn and great coffee on every corner.” He also claims to spend a lot of time on his web site—which is something of an understatement.

A visit to <http://tim.menzies.com/index> reveals links to standard items like academic papers and current projects, as well as the more eccentric such as Dr. Menzies' insight on the “shocking truth about defibrillators,” the virtues of cats and KidBOTS over babies, the exact latitude and longitude of his office at UBC, and a not-to-be-missed extract from Donna J. Haraway's *Cyborg Manifesto*—all of which amount to sure signs that Dr. Menzies' fascination with maybe extends far beyond his laboratory to his personal life as well.

Achievements

- **Chemical & Biological Engineering Professor John Grace** was named one of the new Tier I Chairs under the Canada Research Chairs Program. The seven-year renewable Chair will help expand Dr. Grace's research in fluidized bed combustion and clean energy processes.
- **Chemical & Biological Engineering Professor James Piret** received a \$5,000 Killam Research Prize in support of his work in a variety of areas of biomedical research including molecular biology and bioreactor engineering.
- **Electrical & Computer Engineering Associate Professor Bill Dunford** recently became the first member of the Department to complete the UBC Certificate in Teaching and Learning in Higher Education. After completing a one-year program consisting of 12 modules, Dr. Dunford was presented with his certificate by University President Martha Piper on January 23, 2001.
- **Electrical & Computer Engineering Professor Nick Jaeger** and industry partner NXTPhase Corporation were awarded the 2000 Technology Partnership Award by the BC Advanced Systems Institute in recognition of their research collaboration and subsequent commercial success.
- **Electrical & Computer Engineering Associate Professor Babak Hamidzadeh** was named one of the new Tier II Chairs under the Canada Research Chairs Program. The five-year, once renewable Chair will help further Dr. Hamidzadeh's research in interactive multi-media.
- **Electrical & Computer/Mechanical Engineering Assistant Professor Robert Rohling** was awarded a Fellowship from the BC Advanced Systems Institute. The Fellowships are presented annually to selected new faculty members to encourage knowledge transfer from BC universities to the BC technology industry.
- **Electrical & Computer Engineering Professor Tim Salcudean** was named one of the new Tier I Chairs under the Canada Research Chairs Program. The seven-year renewable Chair will help expand Dr. Salcudean's research in haptic and multi-modal interfaces.
- **Mechanical Engineering Professor and Associate Dean Bruce Dunwoody** received a Just Desserts Award from the UBC Alma Mater Society in recognition of his contributions to the growth and success of UBC engineering students. Dr. Dunwoody was nominated for the award by members of the Engineering Undergraduate Society.
- **Mechanical Engineering Assistant Professor Ian Frigaard** was awarded a Fellowship from the BC Advanced Systems Institute to help speed knowledge transfer from UBC to industry in Dr. Frigaard's areas of expertise: Non-Newtonian fluid mechanics and sprayforming processes.
- **Mechanical Engineering Professor Murray Hodgson** received the 2000 Martin Heirschorn Prize from the Institute of Noise Control Engineering (USA) for his paper, "Scale model evaluation of the effectiveness of novel absorber treatments for industrial noise control," which was published in the Noise Control Engineering Journal.
- **Mechanical Engineering Assistant Professor James Olson** was presented with the 2000 Weldon Medal by the Pulp and Paper Technical Association of Canada (PAPTAC) in recognition of his best paper submission.

- **Mechanical Engineering Emerita Professor and former Department Head Martha Salcudean** will be awarded an honorary degree from UBC in May 2001. The degree will recognize her many career achievements and contributions to the University and the engineering profession.

Dr. Salcudean specializes in fluid flow and heat transfer, computational fluid dynamics and mathematical modeling of transport phenomena. She received her B.Eng. and first Ph.D. in her native country of Romania. When she took up headship of the Mechanical Engineering Department in 1985, she became the first woman in Canada to occupy such a post.

Throughout her career she has earned numerous honours including the Killam Memorial Prize, and has been named to the Order of British Columbia and a fellow of both the Canadian Academy of Engineering and the Royal Society of Canada. We are proud to have Dr. Salcudean included amongst UBC's distinguished honorary degree recipients.

Expanding the co-op experience

In the last seven years, the Engineering Co-op Education Program at UBC has become the fastest growing co-op program in western Canada, with student placements climbing by an amazing 375%!

"In the 2000/2001 year alone, we expect to make 1,153 placements both nationally and internationally," said Program Director Jenny Kagetsu. "The success is due to growing demand from students and employers, both of whom benefit from the co-op experience."

Through co-op, employers get ready access to top-notch, enthusiastic students in 10 different engineering disciplines. Work terms usually last four to eight months, with students earning an average of \$2,500 per month—and in the last year, that has translated to more than \$2.5 million in student earnings.

The Program has big plans for further improvement. "Our vision is to become the leading Engineering Co-operative Education Program by adding value to students,

industry and the University," emphasized Ms. Kagetsu. "Some of the things we're working on right now include the a new marketing campaign, two new masters-level internships for students participating in the Software Systems and Architecture programs, and a web-based management information system to help streamline student placements."

To find out more about the Engineering Co-op Program at UBC, visit www.coop.apsc.ubc.ca or call (604) 822-3022.



The growing co-op team! From left to right, back: Coordinator Jeff Otto; Assist. Director and Coordinator Shawn Swallow; middle: Interview Liaison Rep. Marnie Serfas; Coordinator Sasha Krstic; Front Desk Administrator Melinda Worflok; Data Entry Clerk Mary Chan; Software Eng. Zaneta St. Dennis; front: Director Jenny Kagetsu; and Systems Co-op Student Adam Cooper.

Appointments

Chemical & Biological Engineering

- Dr. Louise Creagh was appointed Instructor on November 1, 2000. In this joint appointment to the Department and the Biotechnology Laboratory, Dr. Creagh's main focus will be to serve as manager of the new Biological Calorimetry Hub of the Laboratory of Molecular Biophysics.
- Dr. Madjid Mohseni was appointed Assistant Professor on November 1, 2000. His research focuses on bioprocess engineering and advanced oxidation for environmental engineering and waste management.
- Dr. Dusko Posarac was appointed Instructor on January 1, 2001. Dr. Posarac specializes in mathematical modeling of chemical engineering processes and computer data acquisition and control.

Mechanical Engineering

- Dr. Mohamed Gadala was named the Patrick Campbell Chair in Mechanical Engineering Design. His research focus is on finite element formulation and application to nonlinear and fracture mechanics problems and on design optimizations using the finite element method.
- Jon Mikkelsen was appointed Instructor on January 1, 2001. He specializes in naval architecture, fishing gear design, mechanical design, and engineering measurement.

Electrical & Computer Engineering

- Ray Burge was appointed part-time Instructor on September 1, 2000. He will support the Project Integration Program with his expertise in instrumentation and control of industrial processes and high power electronics.
- Luis Linares was appointed Instructor on January 1, 2001. His areas of expertise include power systems, complex dynamic system simulation and software development.
- Dr. Mihai Huzmezan was appointed Assistant Professor on September 1, 2000. Dr. Huzmezan specializes in industrial process and multi-variable control, and control of anesthesia.
- Dr. Robert Rohling was appointed Assistant Professor on January 1, 2001. In this joint appointment, Dr. Rohling will divide time between Electrical & Computer Engineering (two-thirds) and Mechanical Engineering (one-third), as he focuses on biomedical engineering, ultrasound instrumentation and imaging, and signal processing.



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Editor and Writer:

Laurie Dawkins
Communications Officer
Faculty of Applied Science

Contributing Writers:

May Cordeiro
Mona Miller-Tait
Sherry Green

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The Faculty of Applied Science

CEME Building
2006-2324 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604.822.6413
Fax: 604.822.7006
dean@apsc.ubc.ca
www.apsc.ubc.ca

The Faculty's engineering activities include the following:

Departments and Programs

- Chemical and Biological Engineering
- Civil Engineering
- Electrical and Computer Engineering
- Engineering Physics
- Geological Engineering
- Integrated Engineering
- Mechanical Engineering
- Metals and Materials Engineering
- Mining and Mineral Process Engineering

Office of the Dean

- Business & Development Office
- Engineering Student Services
- Engineering Co-op Office

The Faculty participates in several research centres and laboratories including:

- Institute for Computing, Information and Cognitive Systems (ICICS)
- The Advanced Materials and Process Engineering Laboratory (AMPEL)
- The Biotechnology Laboratory
- The Pulp and Paper Centre
- The Centre for Advanced Technology in Microelectronics

