



The EcoCAR Challenge's Canadian Content

Green car design is a hot topic in the world today and the Department of Mechanical Engineering is driving the green bandwagon. In May of this year Department Chair Dr. Zuomin Dong and a team of students were selected to compete in the EcoCAR - Next Challenge competition, sponsored by General Motors, US Department of Energy, Natural Resources Canada as well as other government agencies and automotive, electronics, computer equipment and software companies.

One of only three Canadian universities selected to compete in the challenge, the team hopes to include as many Canadian technologies as possible into their vehicle. The team is focusing on utilizing Plug-in Hybrid Electric Vehicle (PHEV) and clean diesel engine technologies. Initially mechanical engineering undergraduate and graduate students, the team

now comprises students from other engineering departments at UVic, with the potential participation from business students.

This fall Dr. Dong is teaching a new course based on the EcoCAR - Next Challenge entitled *Fundamentals of Hybrid Electric Vehicles* covering technology advancements, modelling, simulation and design. This course is aimed at students participating in the Challenge who will also receive academic credit for their participation in the EcoCAR Challenge itself.

For more information on the EcoCAR Challenge, please visit <http://www.ecocarchallenge.org/> and for up to date information on the UVic EcoCAR Challenge team please visit <http://www.ecocar.uvic.ca/>

Members of the UVic EcoCAR team
at the kickoff workshop in Boston



R. Feldman/EcoCAR

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Message from the Dean

Tom Tiedje, PhD, FRSC, PEng



As the Faculty of Engineering celebrates its 25th anniversary it is worthwhile reflecting on where we are as a faculty and how we got here. In 1983 the faculty started with one department and a temporary home in an old army hut (L-Hut). Andreas Antoniou, the first chair of Electrical and Computer Engineering, reminisced about the early days of the faculty at a recent birthday of one of the faculty's founders, Vijay Bhargava. In those days, shortly after they first arrived, they made a habit of walking over to our present location, which had been covered with trees, to see the progress of construction. Now with three modern buildings the faculty has better facilities, but space continues to be an issue with a shortage of student social space, areas for student projects, and research facilities.

Over the past 25 years, a short time in the life of any university, UVic has become one of the top-ranked comprehensive universities in Canada, a leader in surveys of student satisfaction and highly rated in research. In addition a remarkable number of companies have been created and staffed by UVic engineers and computer scientists, which is an indication of the success of our students and the importance of engineering to society.

As outlined in the faculty's strategic plan, priorities for the future include broadening our engineering program, strengthening our connections to the community, and raising the international profile of our faculty. As the new Dean, I am honoured and excited to be part of the faculty at the beginning of its second 25 years.

Engineering 25th Anniversary

The year was 1983. Kids were listening to "Flashdance" on walkmans, "Return of the Jedi" was number one at the box office, and the first "Mario Bros." game had just been released. On the technology front, computers had 128 K of memory and weighed 28 pounds; cell phones cost \$4,000. Canada had Pierre Trudeau at the helm and had officially adopted the metric system.

And UVic had just launched the Faculty of Engineering.

Much has changed in 25 years from 70 electrical engineering students tucked away in L-Hut. Engineering now has three buildings of its own, over 1,200 students, 300 faculty & staff, and offers programs in Computer Science as well as Electrical, Computer, Mechanical and Software Engineering.

"We are very excited about the 25th anniversary," said Afzal Suleman, Associate Dean Research. "We hope that people from the community and alumni will come and share with us this milestone in the Faculty of Engineering."

To celebrate its 25th anniversary, the Faculty of Engineering has planned a year's worth of events. Activities kicked off in early October with a High School Challenge Day and an Open House. Coming up in November are the MISTIC Computer Music concert, high school tours of the faculty, and an "Engineering for Health" Design Party for high school students. The events celebrating the 25th anniversary will continue into the New Year.

For more information visit www.engr.uvic.ca/25.



Computer Science

The Department of Computer Science welcomes its new Chair, **Dr. Sue Whitesides**. Dr. Whitesides joins us from McGill University, where she was also the head of Computer Science. Her areas of interest include computational geometry, complexity bounds, combinatorial algorithms, discrete mathematics and theoretical computer science. Dr. Whitesides looks forward to building a collaborative relationship with our alumni and friends.



Dr. Sue Whitesides and Amyn Rajan of Simba Technologies at the Co-op Career Fair in September

A recent highlight of our departmental research has been the Open House of the Software Engineering Global

interAction Lab group (SEGAL) was a huge success. The group studies issues related to business functions across multiple geographic locations – including areas such as cultural considerations, developmental tools and knowing who has expertise and authority in another country.

Also, an Internet Course for Senior Citizens started again this fall, following the overwhelming popularity of the spring sessions. A group of Computer Science students, led by Jennifer Wong and Lior Malkay teach basic internet skills to seniors using Computer Science Department lab resources. The sessions demonstrate web functions and services (i.e., transferring photos or using Google functions) and strengthen confidence to ensure participants go home and continue learning through practice.

The Computer Science Graphics Group, with Canada Research Chair Brian Wyvill and Professors Amy and Bruce Gooch, has diverse research interests ranging from 3D modelling to non-photo realistic rendering, games, computational photography and user interfaces. The group is currently involved in the organization of five international conferences to be held next year, including two in Victoria. For information on the conferences being held in Victoria, go to www.computational-aesthetics.org/2009 and www.cgi09.org

UVic Mechatronics Students Assist Persons with Disabilities

Dr. Doug Tolson

CanAssist, directed and founded by Nigel Livingston, is a unique program dedicated to developing customized technologies and devices that improve the quality of life of those with disabilities. We started with a single project in 1999 to help a young man at the Queen Alexandra Centre for Children's Health. Since then we have developed a wide range of technologies and provided direct assistance to numerous people across BC, Canada, and around the world. All our projects are taken on in response to requests from the community.

One core component of our program is student engagement. Almost 2,000 (mostly) UVic students have been involved in our activities - whether taking on projects as part of an engineering design course or volunteering to work one-on-one with clients. Apart from harnessing the students' exceptional talent and energy, we believe that these students, with their increased knowledge and awareness of disability issues and as future leaders of society, will be very powerful advocates for inclusion.

Recently, four ELEC 499 Engineering students, Brian Claus, Cambria Hanson, William Logan and Jamie Marshall, participating in the Capstone Project designed

and built a system that controls the pan and tilt and positioning of a camera used for tracking eye movement. Our overall goal is to track the eye movement of users who have extraordinarily challenging disabilities – for example, who are unable to talk or communicate and, in many cases, have very limited or no control over body movement. The student team addressed a major challenge in that many users move their heads making it very difficult for the camera to remain focused on their eyes. By utilizing an ultra-sonic sensor that detects movement and by employing stepping motors to change the camera position in response to this movement, the team has enabled us to build a much more reliable and robust system and, also, increase how fast we will be able to provide this unique technology to users.



CanASSIST Volunteers

ALUMNI PROFILE

Electrical and Computer Engineering alumnus Kiran Swaroop Kumar

In 2007 graduate student Kiran Swaroop Kumar won the Accelerate BC Internship Award of Excellence for Industry Impact while he was an intern at Carmanah Technologies Corporation, a Victoria based solar lighting and power company. Kiran's former Masters studies supervisor, Dr. Reuven Gordon found Kiran to be an extremely well rounded student. So well rounded he published eight peer-reviewed journals during his grad studies (a feat normally met by PhD students). Eight journals are impressive enough, but even more impressive is that Kiran also only took five terms to complete his studies and those eight journals.

Not only was Kiran recognized for his exceptional work during his internship, the experience itself had an impact on Kiran. "I had the opportunity to work with other engineers as well as the company's sales teams and hear from the front-line people what their customers were asking for," says Kumar. "This helped to ensure that the products that we were developing addressed the needs of the marketplace." After Kiran finished his Masters, he accepted an extended contract with Carmanah.

A 21st Century Research Facility

VENUS—the cabled ocean observatory deployed off the coast of Vancouver Island—celebrated its 2nd anniversary of live data collection from the ocean seafloor. Initiated with the idea to make ocean research available to everyone around the world using the power of the Internet, VENUS has proven the concept of “interactive ocean research.” It has grown into a cross-disciplinary collaboration platform, where oceanography meets biology, chemistry, marine ecology and where criminology takes one step further in understanding the ocean environment for forensics research.

A 21st century research facility, VENUS represents a network of scientific instruments deployed on the seafloor in Saanich Inlet and the Strait of Georgia. The instruments are connected through 43km of fiber-optic cable that provides both power and two-way communication. A variety of sensors monitor a wide array



Forensics research photo taken with a camera on the underwater observatory

of parameters—from water temperature, density and conductivity to nitrogen concentration, dissolved oxygen and water turbidity. A seabed digital camera and acoustic hydrophones provide invaluable data about animal migration and communication.

From the VENUS observatory data continuously streams to the Data Archive & Management System at UVic for processing and storage. Almost immediately it becomes available on the VENUS website where it can be viewed online and downloaded by individual users. With an open data policy and a variety of data streams and formats, VENUS makes a great resource for anyone interested in learning more about the ocean—be that students, young faculty, alumni, or seasoned professional researchers. VENUS welcomes everyone!

Check out VENUS live data and multimedia galleries at www.venus.uvic.ca

New Faculty Members

Dr. Rustom Biladvala joined the Department of Mechanical Engineering earlier this fall. Most recently from Pennsylvania State University, his background is in fluid/thermal sciences. More specifically, Dr. Biladvala's background focuses nanoscale devices using thermal or resonant transduction to impact public health and energy systems. His research plans involve the development of microsensors to help understand turbulent wall shear stress fluctuations and the use of nanoresonators to study fluid-structure in the transition regime of rarefied gases with immediate application in biosensing. His PhD work was on microsensors for turbulence measurement and nanofabrication techniques.

In Electrical and Computer Engineering **Dr. Tao Lu** is joining us from the California Institute of Technology. His work focuses on communications and ultra high resolution microscale sensors for bio and chemical sensing. Dr. Lu's research includes fabricating and measuring subhertz microcavity lasers as well as ultra high resolution Raman spectroscopy for bio/chemical sensing. His PhD work was on optical communications.

Welcome aboard!

The EngrNews Alumni Newsletter is looking for a new name!

Can you help us find a new name for our Engineering Alumni Newsletter? A prize is offered for suggesting a new name for the newsletter. If your suggestion is adopted you will win \$100. Please submit your entries to Kate Hollefreund at khollefr@uvic.ca by December 31st, 2008.

Stay in Touch

Tell us where you are and what you are doing. Send us a photo and we'll print your bio in our next newsletter. Please email engralum@uvic.ca.

Our Facebook Engineering Alumni Group has a membership of 270. Have you joined yet?



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