

INTERFA·CE

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"I believe the true danger to children would not come from exposing them to an unfettered information medium of such magnitude that it has become a matter-of-fact part of daily life for a majority of Americans. The greater harm would come from weakening the First Amendment to the point where children would grow up to become adults in a shrunken, compromised democracy, deprived of the freedoms we now enjoy."

- Karen G. Schneider, librarian and author, in a May 16, 2000 letter to the US Dept. of Justice refusing to testify in support of Internet censorship laws.

How Smart Is Your Car...?

Remember "Knight Rider" - the 80s American TV series featured a pre-Bay Watch David Hasselhoff and his turbo-boosted Pontiac Firebird with the super-intelligent onboard microprocessor named KITT? Well, thanks to the research team responsible for intelligent driving simulation systems like COBVIS-D, we're now a bit closer to making KITT a reality.

COBVIS-D is an acronym for Cephalo-ocular Behavior and Visual Search patterns on Drivers. It's a combined driving simulator and computer vision system designed to assess an individual's driving abilities by monitoring eye movements and other driving behaviours. For high-risk drivers, it allows for the collection of objective behavioural information in the safety of a simulated driving environment. The data collected by COBVIS-D can also be used to retrain these drivers in the specific areas where key driving skills and abilities are identified as inadequate.

While safety is the primary advantage of a driving simulator, simulators can't fully recreate actual driving environments. With this in mind, the COBVIS-D research team is now taking their simulator/computer vision system a step further by designing data collection components for in-car use. SPEED-Q will allow for the collection and comparison of driver data from both simulated and real driving environments.



Driving Simulator

Headed up by Dr. Denis Laurendeau, Director of the Computer Vision and System Lab (CVSL) at Laval University, the seven-member team brings together researchers from such diverse regions of Canada as Quebec, Calgary and Ontario. UWO's Dr. Steven Beauchemin is one of the team's members.

According to Dr. Beauchemin, working with a bi-cultural Canadian research team is a positive experience "We come from different fields: Computer Science Engineering and Psychology So it is also a multi-disciplinary approach."

The two year project, isn't just for driver re-training. It has commercial applications in computer-assisted driving and, eventually, autonomous driving.

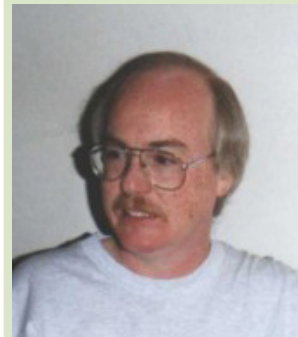
What does this mean for drivers of the future? Well, long haul truckers might have a device that monitors their head and eye movements, issuing an alarm when the driver begins to look sleepy. Another use might be to install a monitor that looks for physical signs of impairment in drivers convicted of DUI offenses. Breathalizers cannot detect the presence of narcotics or other non-alcoholic substances.

Maybe some day we'll see a device that pumps out soothing music in response to road rage, or one that launches into a tirade about the dangers of driving distracted when the driver tries to use his cell phone on the road. That software would be packaged as an option, of course ;). *

Retraining of at-risk drivers will be performed on the simulator in a safe environment

Bob Mercer: AI's "Ghost in the Machine"

by Laura Reid



When I met Dr. Mercer, I was an undergraduate sitting in his third year artificial intelligence course, so I know he has been at UWO for at least 20 years. What I most remember thinking about that first class is "This

guy must be a hippie" because he had really long hair:-) Dr. Mercer grew up in Alberta and did his undergraduate degree and masters degree at The University of Alberta and his PhD at UBC before coming to Western in January 1985.

What is your favourite programming language?

I will say the most politically incorrect thing possible: "I don't actually program much anymore!" But then, I write a lot of papers using LaTeX, and it is as a programming language albeit, a special purpose one), so maybe I can say that LaTeX is my favourite programming language.

Are you a UNIX person or a Windows person (or even an Apple person)?

Apple, no question about it, definitely Apple. But then, Mac OS X is really just an Apple interface built on top of BSD UNIX. One of my favourite quotes is "... since any reasonable person would choose a Mac over a PC, Apple's market share provides us with an accurate reading of the percentage of reasonable people in our society". -Roger Ebert, *Macworld*, February 2004

What is your favourite undergraduate course to teach at Western?

CS442 (Artificial Intelligence) because it is a senior level course and it is not required, thus students are taking it because they are genuinely interested in it or curious about it. And it is my area of research: AI is cool.

Have you ever taught a course at Western that you hated teaching? If so, what was it and why did you not enjoy teaching it?

The old equivalent of CS031 (CS 022) but I refuse to answer why I did not enjoy teaching it on the grounds that it may incriminate me.

What do you think makes computer science students successful?

Coming to class, working hard, and waiting to sleep until after the term is over.

What part of your job as a professor do you hate doing?

I'm totally disorganized and being disorganized can make this job difficult. So, trying to organize myself is the part of the job I hate doing.

What part of your job as a professor do you love doing?

Working with people from all over the world and seeing how diverse people are because each culture seems to handle almost every situation differently.

Where is the coolest place you have ever visited? I love the South of France.

What were your favourite subject in high school? Math and chemistry.

Is there a part of the world that you have never visited but would like to someday? South East Asia, Singapore

What are three of your favourite websites?

Currently my three favourite websites are the following:

- *www.apple.com/ca
- *news.google.com
- *www.theregister.co.uk

What do you like to do in your spare time?

I like to chill out in front of the Discovery Channel or a good British mystery/detective show on TVO.

Laura Reid is an instructor for the Department of Computer Science at Western

"... since any reasonable person would choose a Mac over a PC, Apple's market share provides us with an accurate reading of the percentage of reasonable people in our society". -Roger Ebert, Macworld, February 2004

I do not fear computers. I fear the lack of them.

- Isaac Asimov

"Anyone who puts a small gloss on this fundamental technology, calls it proprietary, and then tries to keep others from building on it, is a thief."

- Tim O'Reilly, technology book publisher

"The problem is that most corps think of their website as a marketing endeavor -- like a billboard -- instead of as a front office to their corporate headquarters. If they thought of their websites as places where they brought their clients, those websites would be much classier and elegant and usable -- same as their offices. You don't let your marketing people run your front office; you shouldn't let your marketing people run your website."

- Web designer Vanessa Layne

What's the News? Technology headlines to pique your curiosity

"The Smell of War" To improve its virtual-reality simulators, the military wants to incorporate smell.
-Popular Science

"German laser technology firm developing driverless car" A driverless car may arrive sooner than later, if a report in the Daily Mail is to be believed. Hamburg-based Ibeo Automobile Sensor, a laser technology company, is reportedly in the process of developing a driverless family car.
-London Daily Mail

"Orangutans play video games at Zoo Atlanta" The two Sumatran orangutans at Zoo Atlanta are playing computer games while researchers study the cognitive skills of the orange and brown primates.
-Associated Press

"Guild Wars': An experiment that worked" With more than 3 million units sold, legions of passionate fans and heaps of critical acclaim, "Guild Wars" is probably the most popular massively multiplayer online game you've never heard of.
-MSNBC

"Pope: Science too narrow to explain creation" Pope Benedict, elaborating his views on evolution for the first time as Pontiff, says science has narrowed the way life's origins are understood and Christians should take a broader approach to the question. The Pope also says the Darwinist theory of evolution is not completely provable because mutations over hundreds of thousands of years cannot be reproduced in a laboratory.
-Reuters

"Water detected on distant planet" Water has been detected for the first time in the atmosphere of a planet outside our Solar System. The planet, known as HD 209458b, is a Jupiter-like gas giant located 150 light-years from Earth in the constellation Pegasus.
-BBC News

"Mars Warming Due to Dust Storms, Study Finds" New research has shown that dusty tornadoes called dust devils and gusty winds have helped the surface of Mars become darker, allowing it to absorb more of the sun's rays.
-National Geographic News

"Senate defies Bush on stem cells" The US Senate has voted to ease restrictions on using federal funds for stem-cell research, defying the threat of a veto by President George W Bush.
-BBC News

"Blood made suitable for all" Scientists have discovered enzymes that can efficiently convert blood groups A, B and AB into the 'universal' O group -- which can be given to anyone but is always in short supply.
-news@nature.com

"Bio-artists bridge gap between arts, sciences" Adam Zaretsky once spent 48 hours playing Engelbert Humperdinck's "Greatest Hits" to a dish of E.coli bacteria to determine whether vibrations or sounds influenced bacterial growth. Watching the bacteria's antibiotic production increase, Zaretsky decided that perhaps even cells were annoyed by constant subjection to "loud, really awful lounge music."
-Associated Press

And the Award Goes To...

Professor Nazim Madhavji's and his doctoral student, Remo Ferrari's, paper entitled "Requirements-Oriented Problems While Architecting: An Empirical Study" was among the best papers of the REFSQ'06 conference -- The 12th International Working Conference on Requirements Engineering: Foundation for Software Quality. Based on this, they were invited to submit a paper (entitled "Architecting-Problems Rooted in Requirements", which was peer reviewed and accepted) for a special issue of the Information and Software Technology journal (Elsevier).

At the IEEE/IFIP Conference on Software Architecture (WICSA 2007), they received the Best Paper award for their paper entitled "The Impact of Requirements Knowledge and Experience on Software Architecting".

A patent entitled "System and method for fast approximate energy minimization via graph cuts" (owned by Cornell University) and based on imaging research by Olga Veksler and Yuri Boykov, has recently been licensed to Google to be used for geospatial image stitching in Google Earth (<http://earth.google.com/>).

A nonprofit council that monitors that Canadian IT landscape is set to release a study that shows a considerable gap between the number of new hires needed each year versus the number of graduates coming out of Canada's universities.

The report, which will be presented by the Software Human Resource Council (SHRC) at this week's GTEC conference in Ottawa, found that the ICT sector requires 35,000 new hires each year. That number jumps to 89,000 for the next three to four years.

Compare those numbers to the amount of students enrolled in computer science and computer engineering programs at the post-secondary level, and SHRC's president Paul Swinwood said they don't add up.

- business.ca

"It is proof of a base and low mind for one to wish to think with the masses or majority, merely because the majority is the majority. Truth does not change because it is, or is not, believed by a majority of the people."

- Giordano Bruno, 1548 (burned at the stake, 1600)

"Communication has changed so rapidly in the last 20 years, it's almost impossible to predict what might occur even in the next decade. E-mail, which now sends data hurtling across vast distances at the speed of light, has replaced primitive forms of communication such as smoke signals, which sent data hurtling across vast distances at the speed of light."

- actor/comedian Steve Martin

Bioinformatics + Beijing = An Awesome Exchange Opportunity for CS Undergrad



"We should be willing to look at the source code we produce not as the end product of a more interesting process, but as an artifact in its own right. It should look good stuck up on the wall."

- Alan & Colston's
"The Programmer's Stone"



"If we knew what it was we were doing, it would not be called research, would it?"

- Albert Einstein

We'd Like to Hear From You!

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Recently I had an opportunity to chat with CS undergrad **Chris Simpson** about his experience as a student in computer science, and his upcoming exchange semester in Beijing, China.

Why did you choose to study Computer Science?

I chose to study Computer Science for a couple of reasons, mainly because I enjoy problem solving and hope to eventually get a job where I don't get bored of it after a couple months. Also, I'm doing the bioinformatics computer science specialization. My hope is that it will give me more job options, so if I don't enjoy what I'm doing I'll have a lot more choices.

What was your favourite course?

Probably CS212, although it was probably my least favourite too. It was the group project course, we made an MP3 player. Working in a group can be really frustrating, and getting that project finished took more time than any other course I've done so far. But I really enjoyed working on a project that actually felt like it had a real world application, and despite the fact that our code probably wasn't the best written code I enjoyed getting the experience of working on a large project.

What you want to be when you grow up? :)

I'm not sure, employed I hope. I'd like to have a job where I can use all the skills I've learned for my degree, bioinformatics and Chinese, but I'm not sure if there is a job like that. I think I'd like a job where I get to research, and develop really amazing software applications where I'm involved in the design / idea process.

What kind of obstacles might someone face when they decide to pursue an undergraduate degree in computer science?

Exhaustion is a big one, a lot of the assignments are time intensive, and if you're working on projects for more than one course at a time it can start to feel overwhelming.



3rd year student Chris Simpson

I understand you'll be leaving for China in a few days...what's waiting for you over there?

I'm going to be taking a full semester of Mandarin Chinese, about 20 hours a week, from March till the end of July. My minor is in Chinese, and this semester I will complete the rest of the courses I need for the minor. This is an exchange that I'm doing through Western, Huron actually, and I'm impressed by the amount of assistance provided for students interested in going on international exchange.

How long have you been learning Chinese?

I've been studying Chinese for 2 years now. I spent a year teaching English in Taiwan and didn't want to lose the small amount of Chinese I had learned, so I decided to take my minor here at Western in Chinese.

What is it that intrigues you about going abroad to study?

I like the idea of total immersion in the language. I think that when studying a language it is more difficult if you're living somewhere people don't speak the language you are studying.

Do you have any words of advice for students beginning a program in Computer Science?

Don't decide to start your coding assignment the night before its due, a lot of the assignments aren't too difficult, but always end up taking a lot more time to finish than you expect.

Announcements!

The next Combinatorial Pattern Matching Conference, **CPM 2007**, will be hosted by the Department of Computer Science at Western July 9-11, 2007.

Western's Department of Computer Science, will host the joint meeting of **SNC PASCO '07** July 25-28, 2007