KITCHENER-WATERLOO SECTION

May 2003

IEEE Executives

Section Officers

Chair: Mauro Rossi
747 3969x110
mrossi@handshakeinteractive.com

Vice Chair: Tony Kormos
725 4706x226
a.kormos@ieee.org

Secretary: Faycal Saffih
888 4567x5167
fsaffih@venus.uwaterloo.ca

Treasurer: Joseph Shu
747 3969x103
jshu@handshakeinteractive.com

Membership development: Tony
Kormos 725 4706x226
a.kormos@ieee.org

Professional Activities:
Gilbert Lai 888 4567x3819
gmylai@Kingcong.uwaterloo.ca

Educational Activities:
Magdy Salama 888 4567x3757
msalama@hivolt1.uwaterloo.ca

Newsletter Editor:
Mike Hulls 519 747 5222 x208
mailto:mike.hulls@ieee.org

Student Activities Chairs

Conestoga College:
Valdis Cers 519 748 5220
cersval@mcmaster.ca

University of Guelph: Shawki
Areibi 519 824 4120
sareiba@uoguelph.ca

University of Waterloo:
Siva Sivoththaman
888 4567
sivoth@ece.uwaterloo.ca
Stream B: Winter 2003 Nicholas Kim

Awards

Wai-Cheung Tang
519 622 2300
WaiCheung.Tang@comdev.ca

Nominations

John Mowbray 519 884 1710
mailto:john.mowbray@ieee.org

Chapter Chairs

Antennas and Propagation Microwave Theory and Technique:)Raafat Mansour)888 4567 x5780) raafat.mansour) @ece. uwaterloo.ca

Circuits & Systems: Faycal Saffih
519 888 4567x5167
fsaffih@venus.uwaterloo.ca

Communications) Raouf Boutaba) 519 888 4820) rboutaba@bbcr.) uwaterloo.ca

Vehicular Technology) Youssef Iraqi) 519 888 567x4716) iraqi@bbcr.) uwaterloo.ca

Control Systems: Fakri Karray
karray@watfor.uwaterloo.ca

Electron Devices:)Arokia Nathan) 519 888 4803

Signal Processing Computers:)Mohamed Kamel)Guy Cote
519 888 4567x5761
mkamel@pami.uwaterloo.ca

GOLD (Graduates of Last Decade)
vacant

The Kitchener-Waterloo Section of the Institute of Electrical and Electronics Engineers serves all members whose mailing address is in Bruce, Grey, Perth, Waterloo or Wellington counties. Address:
IEEE K-W Section
c\o Elect.& Comp.Eng.(DC 2597)
University of Waterloo
Waterloo. Ont. N2L 3G1
www.ece.uwaterloo.ca/~ieee_kw

Section News

Student Papers Night 2003

Source: Tom East

The Kitchener-Waterloo Section of the IEEE held its Annual Student Papers Night on March 13th at the Davis Centre, University of Waterloo. About 50 people were there to hear excellent papers delivered by student members from Conestoga College and the Universities of Guelph and Waterloo. Mauro Rossi, KW Section Chair, was the Master of Ceremonies.

Before the papers started, the results of the RIM Blackberry Programming Contest were announced. The task was to write video games to be used on RIM Blackberry devices. From the University of Waterloo student branch, the winning team was Max Sigalov and Alexandre Kojoukev, for a prize of $1250, second was Ian McIntyre for $750 and third Richard Moore for $250. The only entry from the University of Guelph was from Pujan Patel, who won $1250. An additional prize of $1250 for overall best performance went to Sigalov and Kojoukev.

For the Student Papers night contest itself, there were three presentations from the University of Guelph, three from Conestoga College and one from the University of Waterloo. The presentation of each paper, including question period, took 20 minutes.

A panel of five judges evaluated the presentations. They were Siva Sivoththaman of the University of Waterloo, Rudy Hofer of Conestoga College, John Zelch of the University of Guelph, Miro Forest of Conestoga Rovers and Mauro Rossi of Handshake Interactive Technologies.

For the University of Guelph, the first prize went to Andrea Ranalli, Kwong Lai, Saroop Bharwani, Milton Hin and Amitkumar Patel for their "Lazy Vacuum", a robot which vacuums a room in a systematic pattern but finds its way around furniture. They had brought their prototype to the meeting, but did not attempt to vacuum the lecture theatre.

Second prize was awarded to Rob Dandford and Paul Wighton for "Device Communication through Power Lines". Their device consisted of a 110v wall socket containing a solid state relay and modem so that the appliance plugged in can be controlled remotely by signaling through the wiring.

Third prize went to Hang Tran, Dave Thompson and Heidi Koschwanez for a feasibility study of "The SaluChip Human Implantable Medical Microchip." The device, which would be inserted permanently in the arm, would store data such as medical history, medications, allergies and organ donor permission. It could be updated to add illnesses and treatments, and recent travels. In an emergency, medical staff would read it out on a monitor in their local language.

For Conestoga College, the first prize was awarded to James Gilbrook, Dan Galway and Mike Jakowlew for "Digital Media Jukebox", which would contain a hard drive, an LCD touch-screen display, Ethernet interface and MP3 decoding for analog audio output.

Second prize went to Bojan Korousic and Sean Carpenter for "EZ-Cash", a system for purchasing products or services using a cellphone. As an example, it would send a message to a vending machine using Short Messaging Service: the machine would deliver the item and the user's account would be debited.

Third prize went to David Poidevin for "Ultra-Wideband Transmission Research". In UWB, very narrow pulses with a bandwidth of a GHz or so are transmitted. He studied the design of a transmitter and receiver.

For the University of Waterloo, the only entry was by Jason Grenier for "Active Power Filter". In 60 Hz power systems, harmonics are harmful. The proposal is to cancel them out using solid-state power devices.

The prizes awarded by the Section are: first prize $150, second $100, and third $75. Research In Motion (RIM) added to these amounts, first $500, second $250 and third $100. Additional prizes for best papers overall went to (1st) Digital Media Jukebox, (2nd) Lazy Vacuum and (3rd) EZ Cash.

Life Members Expand

Source: R. Potts

To expand the interest of life members, the K/W, Hamilton & London Life Members Chapters are becoming a joint LM Chapter. Tom East, the K/W LM Chair, is hoping to have a meeting with Jiri Vlach as the speaker in October.

Raytheon Canada to be nominated for IEEE Medal

Source: Tom East

At a KW Section executive meeting the following motion was passed unanimously:

That the Kitchener-Waterloo Section nominate Tony Ponsford of Raytheon Systems Canada Limited for the IEEE Dennis J. Picard Medal "for radar technologies and applications".

Note: The High Frequency Surface Wave Radar (HFSWR), now in operation, is a unique system that searches the sea surface out to the 200 nautical mile limit, and is a breakthrough in radar technology. It operates at around 3 MHz using vertical polarization, so that it hugs the sea surface. Of course, it picks up sea clutter, which is eliminated by sophisticated signal processing. It is needed to check illegal fishing and people smuggling.

For information about the award, see http://www.ieee.org/about/awards/sums/picard.htm

Upcoming Events

Life Members Meeting – May 28

Source: R. Potts

The K/W, Hamilton & London Life Members will have a luncheon and meeting on Wed May28 at the Plainsman Restaurant Hwy5. The meeting is hosted by the Hamilton members.

"Superstring Theory: Past, Present, and Future" - May 7, 2003

Professor Schwartz is an eminent string theorist and one of the founders of this important and highly influential research area. For more biographical information see http://superstringtheory.com/people/johns.html

"Why does science work?" - June 3, 2003

Lee Smolin, author of Three Roads to Quantum Gravity, Researcher, Perimeter Institute
Professor Smolin is a world leader in quantum gravity research and co-developer of "loop quantum gravity", an important approach to unifying quantum theory and Einstein's theory of space, time and gravity.
For more biographical information see
http://perimeterinstitute.ca/people/researchers/longterm.cfm

Congratulations

Senior Member Upgrades

The following members were upgraded to Senior Member status at the April 2003 Admission and Advancement Panel meetings in Frankfurt, Germany:

Ellsworth F. LeDrew - Kitchener-Waterloo
Shaowen Song - Kitchener-Waterloo
Osman C. Sarmento - Montreal

Engineers triumph in competition

Source: UW Daily Bulletin, selected by C. Hulls

The second-year computer engineering class, otherwise known as HardBOOTy, is pretty proud of classmate Sonya Konzak, who came home with a top prize from the 2003 Canadian Engineering Competition. It was held at Memorial University in St. John's on the last weekend of February. Konzak, a second-year computer engineering student who had previously triumphed in the Ontario Engineering Competition, won the CEC Environmental Awareness Award for her presentation on oil extraction in Northern Alberta. "This award," the rules say, "recognizes the team, from any of the categories, that best exemplifies environmental consciousness. The project must increase environmental awareness, prevent environmental damage or solve an environmental problem that already exists. Entries will be judged based on environmental concern, research quality, project impact and practicality." John Thistle, faculty advisor to UW's

CEC entrants, says Konzak "is already mulling over prospective topics for an entry into next year's OEC."

Intellitactics

Source: KW Record

Intellitatic's Network Security Manager received the Information Security Excellence Award in the network security management category at the InfoSec World Conference. "It is a pretty big deal because the market has given us validation," said company spokesman Jim Engineer.

Klaus Woerner

Source: KW Record

Woerner, founder of ATS was named business leader of the year by the local Chamber of Commerce. Woerner and his wife, Anna, were praised for the time and money donated to a wide range of organizations including Conestoga College.

Bob McDonald

Source: KW Record

The host of CBC Radio science program Quirks and Quarks received an honorary doctorate of letters degree this week as the University of Guelph. "His fascination and excitement with science and scientific discovery motivate McDonald to bring the voices and faces of Canadian scientists to people of all ages."

UW Programming Team

Source: KW Record

University of Waterloo placed 21th in the ACM International Collegiate Programming Contest. They were the highest-ranked Canadian team.

Recent Events

Engineers to show off 3-D theatre

Source: UW Daily Bulletin, Selected by C.Hulls

Architects, town planners, mechanical engineers and computer scientists who share an interest in computer-aided design showed off one of their flashiest tools at an open house for the new Integrated Centre for Visualization, Design and Manufacturing (ICVDM).

The interdisciplinary research center is one of its facilities for moving between the physical and virtual world -- the Immersive Design Theatre. The theatre, in the Davis Centre , has an eight-by-ten-foot stereo display wall that immerses visitors in three-dimensional space. Applications will be demonstrated, ranging from urban design with a virtual model of downtown Waterloo, through virtual machining, to a navigation psychology experiment.

Architects and planners are involved in the project because they need to visualize the urban and interior environments they create for the future. The computer can make their

work easier and more reliable, allowing them to cope with vast quantities of data and visualize the consequences of different options interactively.

Mechanical engineers are interested because they want to use computer graphics and simulation to provide an accurate, three-dimensional model of what happens when a machine alters the shape of a metal sheet or bar. This data can be used to optimize control of the machines that do the shaping (manufacturing). Computer scientists are involved because they bring everything together, in part by developing the new computer graphics and simulation techniques both architect/planners and engineers need to achieve their objectives.

The founder and director of the centre, architecture professor Thomas Seebohm, is a specialist in using computers for architectural designing.

http://www.adm.uwaterloo.ca/infonews/release/2003/046%20Computer%20design%20projects,%20March%2011,%202003.html

Fourth Year Design Projects – Systems Design

Source: KW Record
The students presented their projects, developed over the last seven months. The projects included a firefighting robot, an intelligent Foosball table and a plagiarism detector.
http://www.systems.uwaterloo.ca/UnderGrad/Workshop/workshop_forth2003.htm

Genetic Circuit Design

Selected by C.Hulls
Speaker: Stephen Davies, Assistant Professor with the Institute for Biomaterials and Biomedical Engineering, and the Edward S. Rogers Sr. Department of Electrical and Computer Engineering of the University of Toronto.

Abstract: A genetic circuit consists of genes, their control regions (promoters), their products (proteins) and control inputs. All living things contain genetic circuits. However, it is only recently that synthetic genetic circuits have emerged. Our laboratory has been actively engaged in the design of genetic circuits for the past two years. We have followed the paradigm of creating genetic circuit analogs to electronic circuits. Candidate designs are subjected to extensive stochastic modeling prior to implementation. This talk described the circuits that we have designed and built. These include an analog circuit (an inverting amplifier) and a digital circuit (a clocked latch). As our experience grows, we are developing new ways of understanding these circuits and transcriptional regulation in general. As an example, in this talk, the notion of a genetic transistor will be introduced.

Grad Student Research Conference

The University's Graduate Student Research Conference took place April 2-4. It was an opportunity to see a cross-section of the University's research activities, to support our students and to encourage new and continued corporate sponsorship of the event.
http://www.grad.uwaterloo.ca/conference/

Canadian astronaut, Chris Hadfield

Canadian astronaut, Chris Hadfield was the speaker for the Friends of the Library's annual "lecture and authors event". Hadfield conducted research at the University of Waterloo in 1982.

Dr. Singh on the Mathematics of Chance

Source: Tom East

It was a full house at the Waterloo Memorial Recreation Complex, as Dr. Simon Singh gave a Perimeter Institute public lecture on 2nd April in his charming English (Cambridge?) accent. His subject was "the Mathematics of Probability and Mathematics of Chance".

It all started with Pierre Fermat and Blaise Pascal settling an argument about gambling. Dr. Singh gave many examples of the misapplication of the laws of chance. For example, in the infamous O.J Simpson case, the defence stated that "one in a thousand abused women are murdered by their husband" implying that O.J. was not her murderer. The prosecution could have pointed out that "80% of murdered abused women are murdered by their husband" but failed to do so.

People have searched the Bible for hidden messages, picking out, for example, every fifth letter in a page, and getting some meaningful phrase (if they try long enough). However, this has also worked with a page from the novel Moby Dick, and would presumably also work with any text.

What is the probability that the first digit in any entry in a spreadsheet is a 1? It is not 10%, but about 30% (Dr.Singh said 50%, but never mind) and the probability of the first digit being 9 is 5 %. The point is, that in the USA, the IRS scans income tax returns to see whether the figures follow that trend: if they do not, they may be fabricated, and need probing.

Dr. Singh left us with the thought that "Statistical thinking will some day be a necessary condition for good citizenship."

Singh a science journalist (and particle physicist) author of Fermat's Last Theorem and other books, also spoke on "Cracking the Cipher Challenge"

Quantum Computing

Selected by C.Hulls

An ordinary computer uses classical bits-objects that can take on two values, 0 and 1. A quantum computer uses 'qubits'-quantum objects that can be in a linear superposition of both states 0 and 1 at the same time. If such a computer could be built, it would be able to solve certain difficult problems exponentially faster than a classical computer. Construction of large-scale electrical circuits that are quantum mechanical rather than classical has never been done before and is an extremely daunting engineering and

physics challenge. You might think that devices such as lasers and transistors are quintessential quantum machines. However they are actually classical devices whose parameters and properties are controlled by microscopic quantum physics, but whose degrees of freedom (currents, voltages, electromagnetic wave amplitudes) are purely classical.

In laboratories around the world today, larger and larger objects are being made to behave like artificial quantum 'atoms.' This is forcing us to confront our understanding of the foundations of quantum mechanics, the meaning of quantum measurement, and the meaning of the boundary between the world of quantum physics at small scales and the ordinary classical world in which humans live. This talk gave a gentle introduction to 'quantum electrical engineering' and described recent experimental breakthroughs in the design of superconducting circuits that have led to the construction of an extremely high quality working quantum bit. This spectacular achievement puts us past the first of very many hurdles that must be overcome in order to build a working quantum computer.

UW Computers Attacked

Source: UW Daily Bulletin , Selected by C.Hulls

The engineering computing facility was victimized over the weekend, as three primary Unix servers were hacked into, making mail and web service inactive until replacement machines were brought on line. "The hacked machinery was due to be replaced with newer, more powerful hardware that we were already in the process of configuring, but we had hoped to make the changeover in a less sudden, and considerably more graceful manner," writes Paul McKone, one of the people whose weekend was interrupted by the problem. His colleague Bruce Campbell notes that "the attacker gained root privileges and had installed, or was in the process of installing, a rootkit and backdoor," all of which suggests that some long-term misuse of the machines was planned. The story is told more fully on the department's web site.

Funding for more computer research

Source: UW Daily Bulletin , Selected by C.Hulls

Security for e-mail on BlackBerry portable communicators is among the topics that will be pursued by UW researchers helped by the latest round of funding from Communications and Information Technology Ontario and industry partners, UW's news bureau has announced.

CITO -- which handed out more than $5 million across Ontario in this round of grants, matched by almost $4 million from industry -- is a "centre of excellence" for work in such fields as wireless networks and devices, the Internet, human/computer interface issues, health information storage and retrieval.

http://www.adm.uwaterloo.ca/infonews/release/2003/068%20Funds%20for%20high-tech%20research,%20April%201,%202003.html

Trends and Opportunities in Networking and Telecommunications

Source: Youssef Iraqi

Seminar presented by: Nortel Networks Institute for Telecommunications of the University of Toronto and Nortel Networks Institute at the University of Waterloo.

Alberto Leon-Garcia and Tony Yuen discussed the current trends in networking and telecommunications. They identified opportunities for new communication-intensive products and services.

Business Continuity Planning for Information Technology

Source: M Forest

With the continued and increasing penetration of globalization, e-Commerce and Web applications into every aspect of enterprises both large and small, the importance of on-going operations of IT infrastructure has never been higher.

This seminar described the recent evolution of business continuity planning, quantified the potential threats to IT infrastructures, outlined recent developments in standards and guidelines to deal with operational risks and described new Regional assets that can mitigate the effects of threats and potential risks to businesses in the Waterloo Region.

Wireless Medium Access Control Protocols

Seminar by Yuguang "Michael" Fang

Wi-Fi technologies may be one of the very few successful stories in the age of telecommunications downturn. The wide-spread deployment of such technologies has contributed significantly to the delay of the rollout of 3G wireless systems. One of the important components in Wi-Fi technologies is the medium access control (MAC) protocols, particularly the distributed contention-based mode. However, the currently standardized MAC protocol, namely IEEE 802.11 MAC, suffers significant throughput degradation whenever the number of active users is relatively large and performs poorly for real-time applications. There is no quality of service (QoS) provisioning in the original standard. In this seminar, we presented our recently proposed MAC protocol which can not only dynamically tune the throughput performance to the varying number of active users, but also maintain good fairness. Our design objective is to improve the protocol performance while maintaining the simplicity of implementation.

Vijay K.Arora Discussed Hot Electrons

Source: Tom East

About 20 people turned out for an Electron Devices Chapter presentation. Vijay Arora is an IEEE distinguished lecturer: his rapid delivery was made easier to follow by the fact that he handed out in advance hard copy of his 45 overheads to all in the audience.

The possible existence of "hot electrons" is important in the development of submicron CMOS, since they would increase speed. There are several definitions of electron

velocity, but an applied field does change the random motion of electrons in a semiconductor to a more directed motion. However, there is a saturation effect in CMOS which increases resistance, and hence time constant, in the tracks, and tends to set a limit to speed.

Seminar on Concerns: Separations and Compositions

UW Daily Bulletin, Selected by C.Hulls
Seminar by Dr. Michael Jackson
Separation of concerns is a well-recognized principle. But it is not always easy to say exactly what is, and what is not, a concern. In this talk a notion of concern is presented based on the decomposition of realistic problems into simple subproblems. The composition of these subproblems to obtain a full solution to the original problem is seen to raise further concerns of a different nature.

Conestoga College Manufacturing and Automation training center

Source: KW Record
The existing ATS Engineering Complex will be expanded using a provincial grant and the assistance of many industrial partners.

Communitech at Hong Kong Information Infrastructure Expo

Source: KW Record
Jane Jantzi represented local post-secondary institutions and businesses. “It’s about extending our own markets, helping our companies to grow and make the right contacts”.

Computing’s Early Days

Source: KW Record
Kevin Stumpf and Peter Knoll raised money for a local charity while displaying their collections of computers from the 1954-1984 eras. “People will walk away with a sense of the look and feel of the drastic changes that have taken place in technology. In the big ol’computers there were miles of wire that the signals had to travel through, whereas now it’s all done on these tiny, tiny chips.”

David Suzuki on Nature Challenge

Source: U. of Guelph archives
The University of Guelph had David Suzuki speak on March 24.
“The steps in the Nature Challenge are deceptively simple,” said Suzuki. “If thousands or even millions of Canadians took the challenge, we’d significantly reduce our impact on the environment. In our busy lives most of us have forgotten that it is nature that supports everything that we do. By leaving nature outside of our day-to-day decision making, we are seriously damaging the environment and threatening our quality of life.”

News from Industry

Spheral Solar Power

Source: KW Record

This ATS subsidiary produced its first commercial prototype using its new solar cell technology. The solar mat is designed for use in recreational vehicles and boats. “There are still a few design changes to make on it, but we have got in to the point we can start putting it in front of customers to get their viewpoint on it”

Waterloo Maple Inc renamed Maplesoft

Selected by C. Hulls

Waterloo Maple Inc. introduces Maplesoft as primary business name. The introduction of the Maplesoft name is a reflection of its popularity and usage within the company's customer base. For almost 15 years, the company has used the domain name maplesoft as part of its e-mail addresses and as its primary Web site URL (www.maplesoft.com). Consequently, with the growing importance of domain names over the years, Maplesoft became synonymous with the company in many people's minds and has developed high brand recognition.

Starting a Software Company

Source: KW Record, Selected by C.Hulls

The challenges of starting a software company where discussed in this article on April 2. Advice and experiences from NeoTilt, CAMplete Solutions, Desire2Learn and Arius where included.

Jerry Krist – Northern Digital

Source: KW Record

Krist, founder of Northern Digital passed away. A quote from one of his brothers “…(Jerry was)Very old-fashioned and, thankfully, very successful to show that you can still be that type of person and still be successful in a high-tech, high-speed environment”.

Dalsa

Source: KW Record

Savvas Chamberlain, founder of Dalsa, was interviewed as part of Dalsa’s annual open house. “I believe it’s important to contribute to society, to the environment you live in” says Chamberlain, a fellow of the IEEE.

Source: KW Record

Dalsa’s Origin cinematography camera was awarded the Premiere Product Award at the National Association of Broadcasters. One of the key features is a 4K by 2K resolution, about four times than other digital cameras.

Comtext Systems - IntelliResponse

Source: KW Record

The IntelliResponse system uses natural language parsing to provide customer service responses to general queries on a corporate web site. “Nearly all of our clients are seeing up to an 80% drop in e-mails from their Web sites and they are also seeing tremendous savings”. The product was developed by Comtext Systems, a three year old Kitchener company who recently teamed up with Scotiabank to further develop the product.

Covarity – ClearCredit

Source: KW Record

This Kitchener startup has developed a software product that tracks account receivables and analyses credit risks. It expects to grow from 4 to 17 people over the next couple of years.

SlipStream – Web accelerator

Source: KW Record
This Waterloo startup develops a product that compresses data to allow faster access to web pages through dial-up and wireless Internet services.

Sirific – Reconfigurable RF circuits

Source: KW Record
This Waterloo startup develops reconfigurable radio frequency circuits that allow wireless manufacturers to create low-power multi-band, multi-standard products.

Pettigrew Speech

Selected by C. Hulls

The Minister for International Trade, Pierre Pettigrew, talked about international business, both trade and investment in Waterloo recently. Part of his speech: “I am impressed by the number of export successes you have here. First and foremost, all members of Parliament are now certified "Blackberry" junkies. Thank you, Research in Motion! But there is more. Consider, for example, Northern Digital (NDI). An industry leader in 3D motion and position measurement, NDI has more than 4,000 of its systems installed in some 25 countries worldwide, in applications ranging from image-guided brain surgery to wind tunnel testing, biomechanics and human motion research to quality control in automotive manufacturing. With 93 percent of its production destined for international markets, the company has offices in Germany and Hong Kong. Last year, NDI was selected as a finalist for a prestigious 2001 Canada Export Award and won a Global Traders Award as well as an Ontario Chamber of Commerce Outstanding Business Achievement Award. S & L Fabricating of Cambridge builds gas turbine silencing systems for power generation and gas transmissions, which it has sold to customers in Germany and Italy. The company established important new contacts and heightened its profile in Russia and Germany during last year's Team Canada trade mission. Because of that positive experience, S&L is joining Team Canada again this month to Italy, the United Kingdom and the Netherlands.
Since Open Text Corporation created one of the first search engines for the World Wide Web in 1991, it has continued to successfully identify new opportunities for growth. Today, the company supports 15 million users of its collaboration and knowledge management software in 31 countries and 12 languages. Open Text's Livelink software for e-business lets individuals, teams, organizations and global trading companies work together more efficiently through the Internet in fields such as financial services, telecommunication, construction, aerospace and defence. Among its numerous awards, the company was selected as a finalist for a 2001 Canada Export Award and named to Forbes Best of the Web.”

Alternative Energy

Pre-Paid Power in Woodstock

Source: Toronto Star, Selected by M.Hulls
An article on April 20 described the pre-paid power system available to some residents. These residents purchase power on cards similar to pre-paid cellular phone cards. Seeing the cost of power second-by-second makes residents more aware of the cost of everyday conveniences and increases conservation of electricity.

Solar Power

The KW Record carried an article about facets of solar power. A pilot project in Waterloo, implemented by Arise Technologies and supported by the federal government, will have 15 homes installed with solar energy systems. Pros and cons of solar systems were listed but a number of people are predicting growth in solar cell, passive and active solar energy collection systems.

Distributed Generation Seminar

The UW Renewable Energy and Sustainability Research Group arranged a seminar on April 24 with the following topic:
In the recent years, deregulation and unbundling of vertically integrated electric power systems has stimulated the interest in small-scale, environmentally friendly, efficient, and highly reliable generators, which are commonly termed Distributed Generation (DG). Those generators could be driven by renewable energy sources as wind, solar, and micro-hydro systems.

The presentation introduced the concept of DG based on the European experience with DG implementation in the past decade. DG technologies that utilize renewable sources and fuel cells, their advantages as well as technical shortcomings, will be the focus of the presentation.

Editorial

I passed a milestone early this year. It has been 20 years since my first co-op job after 1A at the University of Waterloo. Some things have changed since then, but in other ways the times are very similar. The days of plentiful employment in the IT sector have come and gone. Then, as now, students and recent graduates are struggling to find employment. Like many of my fellow students, I did not get placed with a co-op job that term. I was eventually able to find employment through a friend of my family. The opportunity was desperately needed both as a degree requirement and for financial reasons. I like to think that the person who took a chance on hiring me has benefited too – I still work for him, now as a manager.

What kind of opportunities are being made for today's students? All too often in the IT field the feeling is that we don't have time to mentor our junior employees or provide junior student technical positions. But where do we expect to be in 20 years? It is all too easy to say, "someone else will hire them and give them experience". But if no-one invests in providing opportunities for experience, what kind of future will we have?

Okay, I know everyone is really busy. But look around your desk. Many of us will have a task or two that seems to never get done because it is always put aside to deal with the latest crisis. Often a co-op or summer student could do a task like this. Sure, he or she will take a lot longer to complete it, but it would eventually get done. And like Tom Sawyer and his fence, sometimes it is a lot more enjoyable to supervise rather than to do the work yourself.

In early April, more than 150 (which is greater than 50%) of the first year computer and software engineers at the University of Waterloo did not have a co-op job for the May-August work term. I'm sure students from other universities and colleges are also finding it challenging to gain summer employment. Look around. Think about the future. What can you do to help?

Conestoga College: www.conestogac.on.ca/jsp/coop/contents.jsp
University of Guelph: www.coop.uoguelph.ca
University of Waterloo: cecs.uwaterloo.ca
Wilfred Laurier University: www.wlu.ca/co-op

Engineering Humor

Cheaters Beware

Source: IEEE Antennas and Propagation Magazine Feb 2003, Selected by Tom East

Randy L. Haupt has advice to teachers who set exams, and tells these stories:

A professor decided to eliminate cheating from his 200 student class. He asked a friend, whom the students didn't know, to attend his class on the first exam. He told his friend to pretend to be a student, and to look around at other people's papers, and freely cheat in whatever obvious ways he wanted. In front of the class, the professor warned his friend to keep his eyes on his own test a couple of times. The third time, he walked over to his friend's desk, tore up the exam, and ordered his friend to leave. The students were amazed, and never cheated in this professor's class.

Another story he tells concerned four students who spent the weekend at Las Vegas before a Monday exam. They were having so much fun, they stayed over on the Monday, and told the professor they were visiting a sick friend and got a flat tire on the way back to school, Monday morning. On Monday afternoon, the professor listened to their story, and agreed to give them a make-up exam the following morning. The students were thrilled and studied Monday night. On Tuesday morning, the professor put each student in a separate room and gave them the make-up exam. The first question asked them to calculate a 30 dB Chebychev amplitude taper for a 20 element array, for 10% of the marks. The second question was "Which tire was flat?" for 90 % of the marks.

Something to Remember

Source: Files of J.A.Fields, Berkeley Enterprises
Poor data and good reasoning gives poor results.
Good data and poor reasoning gives poor results.
Poor data and poor reasoning gives rotten results.