

I · N · T · E · R · F · A · C · E

The Official Source of Western's Department of Computer Science News

Vol. 1 Fall 2005

In This Issue:

- **Upcoming CS Events**
.....p.1
- **What's New**
..... p.1
- **Women in Technology**
.....p.1
- **From the Chair**
.....p.2
- **New Industry Advisory Board**
.....p.3
- **How to Contact us**
.....p.4

"Usenet is like Tetris for people who still remember how to read."

— Joshua Heller

Kansas City undertaker Almon B. Strowger invented the first automatic, electromechanical switchboard in 1888."

- *Cyclopedia of Factsoids*

New Undergrad Programs

In September 2004, Western's BSc and BA programs were overhauled through the university's *New Academic Choices* initiative. The general first year has been retained, and departments now offer a series of upper-year modules that can be combined in myriad ways to produce programs that, under the old structure, were just not possible – Computer Science with a French minor, a double major in Computer Science and History, and so on.

For example, a Major module contains 6.0 courses, and a Minor module contains 4.0. People familiar with our old programs will recognize that the CS content has dropped by 2.5 courses for an honors degree. Students can, however, take extra CS options on top of a specialization. For those who want a lot of extra CS, the department offers a variety of minors open only to students who are enrolled in a CS specialization. Currently, these minors are in software engineering, applications of computer science, theoretical computer science, and computer algebra. Plans are in the works for new minors in game development and digital imaging/graphics/computer vision.

Western has encouraged interdisciplinary initiatives in recent years, and Computer Science has been an active participant. At the recent Spring Convocation, degrees were granted to the first-ever graduates from the Bioinformatics program (developed in cooperation with the Department of Biochemistry) and the concurrent degree program in Law and Computer Science (a six-year program in which students earn both honors BSc in CS and a LLB). A five-year program that leads to honors degrees in both CS and Business has just been approved. The department views these combined programs, along with our emerging expertise in computer game development and the flexibility of Western's modular program structure, as important tools in attracting high-quality undergraduates.

Doug Vancise, Undergraduate Chair



Women In Technology

Grade 7 and 8 girls... *tomorrow's computer scientists!*

The computer science department is very proud to be involved in a partnership with IBM to run a Women in Technology Chapter. The purpose of this program is to visit elementary schools and provide a webpage design workshop for grade 7 and 8 girls.

The chapter was started in the 2003-2004 school year, and the response to the school visits has been overwhelmingly positive.

The motivation for this program stems from an alarming trend observed in recent years concerning

enrollment of female students in computer science programs at Western and other North American universities.

(continued on page 3)

CS EVENTS 2005/06

The 11th International Meeting on DNA Computing, June 2005 was a great success. For highlights, see the conference web page at <http://www.csd.uwo.ca/dna11/>

Homecoming, Sept 30-Oct 2, 2005. Come out for a tour of our newly renovated research and undergraduate facilities on **Saturday Oct.1, 2005.** Call (519) 661-2086 for more information. **The Faculty of Science 2nd Annual Dean's Homecoming BBQ for Alumni** begins at 11:30am on Saturday at The Grad Club. Tickets are \$5.00 at the door and include food and beverage.

IEEE 7th International Workshop on Policies (Policy 2006, June 5-7) for Distributed Systems and Networks hosted by UWO's Department of Computer Science

Message From The Chair

“Walking on water and developing software from a specification are easy if both are frozen.”

— Edward V. Berard, *Life-Cycle Approaches*

Did You Know...

All the words ever spoken by humans amount to 5 exabytes. By comparison, we now produce 1.5 exabytes of data per year, including phone conversations, e-mail messages and photocopies.

-Cyclopedia of Factoids

Welcome! It has been a long (very long) time since the Department of Computer Science has “reached out and touched you”! Some of you might remember the “old” Departmental Alumni Newsletter, **INTERFACE**, so ably managed by Dr. Kee Dewdney; others of you will have no idea what I’m referring to. Hopefully, this newsletter, this new, electronic reincarnation of **INTERFACE** will not only be remembered but will be an ongoing effort of the Department.

The Department has grown and matured in many ways over the past decade. There are now thirty-four faculty and the graduate student population is now around one hundred and thirty. Our undergraduate enrolment was very high several years ago but has declined since the dot.com bust. This is not unique to Western, but is true across North America and our decline has not been as severe as some. It does look like this decline has subsided, and the Department is anxious to grow its undergraduate population – somewhat. We want to be able to focus on good students and provide ample opportunities for faculty and student interaction. Through the next few issues of **INTERFACE** we will highlight some of the new researchers in our Department, some of the new activities and some of the challenges facing the Department and our students.

One of the main changes in Departmental activities is a new initiative to engage our Alumni. We are looking to CS graduates for advice, and even for some participation in our programs. We want to ensure that our programs and courses are meeting the needs of the information technology sector, that our students are graduating with the appropriate skills, that our faculty and graduate students are pursuing key research topics and that all of our students have the right non-technical skills and industry awareness.

As a first step in engaging our Alumni, the Department has created an Industry Advisory Board of six Alumni. These kind folk have agreed to be the initial participants on the Advisory Board to help establish the role of the Board and help engage Alumni. More details

“One of the main changes in Departmental activities is a new initiative to engage our Alumni.”

on the scope of the Advisory Board and the current members are discussed in an article in this newsletter.

We hope this newsletter reaches a large portion of our Alumni. However, we know that the email addresses that we have received from the University’s Alumni Development are less than perfect. Please feel free to forward this newsletter on to other Alumni that you know. We have also



CS Alumni Tour Machine Room

established an Alumni link from the Departmental web site (<http://www.csd.uwo.ca>) where additional news items can be found and where Alumni can register an email address. We hope that over time this list will become the primary means for Computer Science Alumni to stay in touch in the Department – and each other.

In this first newsletter, besides outlining our Industry Advisory Board, we also provide an update on new UWO Program Structure and CS – how has our programs changed, pros and cons, majors, minors, etc. and new space/facilities. In this, and upcoming issues of **INTERFACE**, we will also introduce Upcoming CS Events, Faculty Profile, student award recipients (both undergraduate and graduate), regular features and anything else of interest to our readership.

I look forward to hearing from any of you whom we have reached and hope that this begins a useful dialogue for making the Department even stronger in the future.

Mike Bauer, Chair bauer@csd.uwo.ca

Our New Industry Advisory Board

Women In Technology

...cont'd from page 1

These days, its hard to accuse computer science of being an 'ivory tower' intellectual pursuit.

By definition, CS is the science of information which, for the most part, allows us to build tools to make our daily lives easier, and to advance our understanding of ourselves, our planet, our universe.



IAB Chair Tom Doucher, CS82

When CS undergraduate students graduate, they fully expect to have the skills necessary to compete for high-paying, challenging jobs in the rapidly changing IT sector. With this in mind, the Department thought it would be a very good idea to form an Industry Advisory Board, consisting of CS alumni who'd found success in the computer and information technology sector.

CS Chair Mike Bauer invited Andrew Marshall (CS'99), Rick Baker (CS86), Kalli Lefevre (CS81), Tom Doucher (CS82), Mike Frendo (CS81) and Jacquie Sabourin (CS89) to participate in our first ever Industry Advisory Board. They represented a fairly wide spectrum of the industry, working in key executive position for such companies as *Sun Microsystems*, *IBM Canada*, *CISCO Systems* and *Nortel*. Much to our delight, they accepted.

These busy people have agreed to provide industry input into such areas as undergraduate course content, programs, and research innovations. They'll also act as ambassadors and advisors for the Department in engaging other CS alumni in departmental activities. UWO Computer Science welcomes these men and women who are at the leading edge of technology, and we look forward to a creative and productive relationship with them, and our other alumni, for years to come.

Despite widespread efforts to encourage girls to study math and science in high school, and to encourage young women to choose science, math and technology related disciplines in university, the proportion of women graduating from computer science has been decreasing over the past 20 years.

At Western, in 2004, 14.7% of the CS graduates were female, which dropped from 24.4% in 2002. We have been making a concerted effort to increase the numbers of women in our programs through outreach activities and by addressing the needs of our existing female students.

However, a major problem is that by the time girls reach high school, they are already opting out of math and science courses. It is not uncommon for a high school computer science class of 25 students to have only 1 or 2 girls in it. When choosing a study area at university, the majority of young women are not considering computer science as an option. Canada, in its efforts to become a world leader in technology, could benefit greatly from adding many more women to its pool of skilled technology workers. The dilemma facing universities and colleges is how to attract more women to information technology related programs when girls are already opting out in high school?

by the time girls reach high school, they are already opting out of math and science

The roots of the problem lie in the socialization of young girls, and their experiences in elementary schools with computers and gender roles. Most kids gain their first computer experience through playing games. A recent study¹ reports that in a sample of 100 video arcade games, 92% did not include any female roles, 6% had "damsel in distress" roles, and only 2% had active female roles.

In the same article, the authors discuss a study in which high school girls were asked the question "Why are girls less likely to pursue computer science careers?" The top three answers they gave, in order of significance were:

(cont'd on page 4)

I think computer viruses should count as life. I think it says something about human nature that the only form of life we have created so far is purely destructive. We've created life in our own image.

-Stephen Hawking

Did You Know...

The European Commission, the E.U.'s executive body, has issued a proposed law on "computer-implemented inventions", which could allow software to be patented. To date there have been no legal provisions that allow patents to be applied to software in the E.U.

- Grant Gross, IDG News Service

"A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it."

-Max Planck

We'd like to hear from you!

Department of Computer Science

**The University of Western Ontario
Middlesex College
Room 355B
London, ON
N6A 5B7**

**Ph: (519) 661-2086
Fax: (519) 661-3515**

interface@csd.uwo.ca

Visit our alumni web page to help us update your contact information:

<http://www.csd.uwo.ca/>

1. Not enough role models
2. Women have other interests
3. Didn't know about the industry

The problem of sparking girls' interest in computer science is challenging and widespread, but one thing is clear - reaching girls before they make course choices in high school is very important so that they can be encouraged to leave doors open to a career in information technology.

In 1999, IBM established the Women in Technology local chapters. The purpose of each chapter is to visit local elementary schools and run a half-day webpage design workshop with all the grade 7 and 8 girls at the school.



WIT volunteers in Ilderton with Oxbow P.S. students

There are presently over 100 chapters around the world, and since 1999, IBM and its university partners have reached over 250,000 young women. Western's chapter is a cooperative effort between IBM London and the UWO computer science department.

The workshops begin with a short presentation about careers in information technology and some discussion of women in the history of computer science, and then everyone participates in a trivia game. Following this introduction, the girls work in groups of 4 or 5 with a volunteer from Western or IBM to create a website. This activity is designed to achieve several goals: to give the girls a chance to meet a woman working in an IT related job or studying computer science, to have them succeed at a computer related task, to show them that working with computers can be fun and to illustrate that working with computers involves teamwork. At the end of the workshop, each group presents their website using a data projector.

To participate in a workshop as a volunteer is truly an amazing experience. The girls are so enthusiastic and quickly learn how to complete the webpage. A secondary function of this program is that it has given Western's female students and staff a chance to meet each other and women from IBM and to work together. This is also a mentoring opportunity for our students since undergraduates work alongside graduate students and women in industry careers. There are presently 11 volunteers from IBM and 29 volunteers from Western participating in the program. So far, we have visited 6 schools in the London area: Parkview Public School (Komoka), Jack Chambers Public School, Tweedsmuir Public School, Orchard Park Public School, Riverside Public School and Oxbow Public School (Ilderton).

All the girls complete an evaluation form for the workshop which helps us gauge the impact of the program. The response from teachers and students has been extremely positive – for example, one girl from a recent visit commented "I never knew mostly all jobs use computers. And how easy it was to make a website! Tracy was Awsome I had a wonderful time." At Parkview Public School, *before* the workshop, girls responded to the question: "Are you considering a career in technology?" in the following proportions:

Yes: 19 No: 20 Maybe: 2 I don't know: 2

After the workshop (just three hours later!) here is how they answered the question "Will you now consider a career in technology?":

Yes: 40 No: 2 Maybe: 1

Studies have consistently found that mentoring is an extremely important factor in increasing young women's interest and confidence in using computers. We are hoping that in the coming years, when the girls we have met on our trips reach university, we will have helped open the possibility of a career in computer science to them. In the meantime, all the volunteers are looking forward to meeting more enthusiastic young people who have the potential to be tomorrow's technology leaders!

For more information about the Women in Technology workshops, or to inquire about setting up a school visit, please feel free to contact Maia Hoeberechts, Department of Computer Science, hoebere@csd.uwo.ca