New Scholarship for CS Students

UNB recently announced the establishment of the "Professional Quality Assurance Scholarship", a new undergraduate scholarship for Computer Science. Funds for this scholarship have been generously donated by Professional Quality Assurance and the New Brunswick University Opportunities Fund.

Three PQA Sholarships will be awarded each year to New Brunswick residents beginning an undergraduate degree program in the field of Computer Science directly from high school.   This is a two-year (renewable) scholarship; recipients will be awarded $2250 for year 1, and $750 for year 2. Recipients will also be offered summer employment with Professional Quality Assurance after their first year at UNB.

Selection will be based on scholastic achievement and financial need as well as suitability for employment with Professional Quality Assurance. A shortlist of candidates will be reviewed by Professional Quality Assurance. The scholarship will be renewed for Year 2 as long as the recipient demonstrates successful academic achievement and remains in a degree program in the field of Computer Science.

UNBF Programming Team Places Third in Atlantic Region

The UNB Reds programming team placed third in the Atlantic Provinces Council on the Sciences (APICS) programming competition held on October 17, 2008 at Université de Moncton.

The competition was close, with the top four teams each solving all of the six problems; the tie was broken by time differences. Saint Mary's University took first place, followed by Memorial University, UNB Fredericton, and Acadia University.

The UNB Reds team consisted of Nicholas Doyle, Aaron Moss, and Scott Strang. Two other teams also represented UNBF at the competition.   The UNBF teams were formed following a local competition held at UNB Fredericton in September.
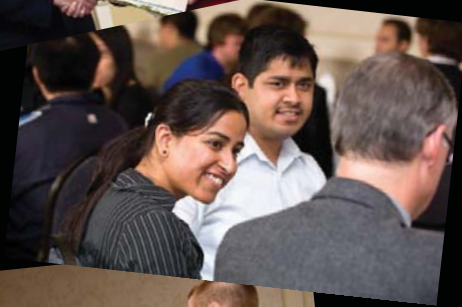
> *"These students are great ambassadors for UNB Computer Science."*
> - Natalie Webber, coach

The top three teams from the APICS competition went on to compete at the ACM Northeast North American Regional programming competition on November 1 in Rochester, N.Y. While the UNB Reds did not place high enough in Rochester to qualify for a spot in the world finals, their coaches, Joseph Horton, David Bremner and Natalie Webber are very optimistic for next year; "We look forward to watching all of the UNB Programming Club members further develop their skills." UNBF has made two appearances in the world finals in the last five years.

CS Awards Ceremony Recognizes Over **$175,000** in Scholarships

There was a great deal to celebrate at the annual Computer Science awards ceremony held in October. While parents, friends, faculty and indusry representatives looked on, UNB computer science students were recognized for their outstanding academic achievements and diverse extra-curricular activities. A grand total of $137, 460 in undergraduate scholarships and awards was celebrated at the awards banquet. Two outstanding graduate students, Adam Leclerc and Valeh Hosseinzadeh Nasser, also received recognition for their prestigious awards. Entrance scholarships were presented to 41 first-year students in the three bachelor programs and additional scholarships and awards were presented to 39 continuing bachelor students. Forty-three undergraduate students were also recognized for achieving a Dean's List standing in the 2007-2008 academic year.

Nearly 150 people attended the 2008 CS awards dinner. J.D. Irving Ltd. was the major sponsor of this year's ceremony. Mr. Dana Sanderson (Director, IT Strategic Planning), was on hand to say a few words on behalf of J.D.I. Several other UNB CS partners also provided financial support for the event and sent representatives to meet our award-winning students.

Distinguished UNB computer science alumnus Danny Keizer, Chief Information Officer for the NB Department of Supply and Services, gave the keynote address. Mr. Keizer recounted his own story of how a UNB computer science education shaped his career. Several students commented that Mr. Keizer's address reminded them of the breadth of possibilities awaiting them following graduation and also motivated them to strive towards even higher achievements.

Celebrating
Excellence

Newsletter Contributor:
Ali Ghorbani

Editor & Graphic Artist:
Natalie Webber

Meet Our Faculty: Dr. J.D. Horton

Commonly known as Joe Horton, he has always used J. D. Horton as his professional name, as this was the custom in mathematics when he was a student. He was born in 1946 in Winnipeg, to parents who themselves were born and raised on the Canadian prairies.

Dr. Horton has always enjoyed mathematics and science. Bored in school, especially junior high, he read whatever books on science that he could. One that stands out was George Gamow's "One, Two, Three, Infinity", which is really on Physics, but had some intriguing mathematical ideas in it, including topology, the four color problem from graph theory, and the uncountability of the real numbers.

In 1968, Dr. Horton graduated from the University of Manitoba with an Honours in Mathematiics. While there, he took the first two undergraduate courses in Computer Science offered by that university. In 1969, he graduated from York University in Toronto with a Masters of Arts in Mathematics, under the supervision of Ralph Stanton. Over the next two years he studied at the University of Waterloo with Ron Mullin as an advisor. His doctoral thesis was on the construction of some combinatorial designs, generating seven journal papers, and three refereed conference papers.

After getting married, having children, and working for the Regional Municipality of Sudbury for several years, he returned to academia in 1980, for one year in the Mathematics department at Simon Fraser Univeristy, and since 1981 in Computer Science at UNB.

His two most cited results were obtained during his early years at UNB. One is a counterexample to a conjecture of the famous Mathematician Paul Erdos, which is now often referred to as the Horton Set. The Horton set is an infinite set of points in the plane that have the property that no set of seven of these points form a convex 7-gon with no points from the set in their interior. The remaining case for $k=6$ was proved last year; if you have more than 1024 points then you have an empty convex hexagon.

Dr. Horton's most cited work is a polynomial time algorithm to find the shortest cycle basis of a graph.

This was an open question for more than twenty years before he found the algorithm, partly because it was expected to be NP-hard. Because the result is about the basic cycle structure of graphs, it has many applications in many areas of science.

In the 1990's Horton's interest switched to automated reasoning systems. With Bruce Spencer he invented the clause tree, which gives insight to resolution proofs.

Outside of academia, his interests include chess and music. He has always sung in choirs, and sometimes plays the piano. During high school he started to play in chess tournaments. Dr. Horton has won the Atlantic championship three times, and played three times in the Canadian Closed Chess Championship. He became a FIDE chess master in 1989, one rank below International Master.
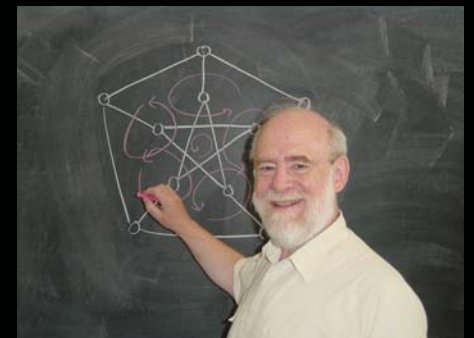
Looking Back

By Dr. Ali Ghorbani

In our last issue we talked about UNB being among the first universities in Canada to introduce the use of digital computers into its teaching and research programs. An LGP-30 was obtained in 1959, followed by an IBM 1620-II in 1964. In keeping with the tradition of providing the best computing services students and clients, in January 1968 UNB rented and installed an IBM 360/50 at 20% educational discount for approximately $20,000 per month. This machine had initially 128K memory, 4x2311 (28 megabytes) disk drives, and1403 printer and two tape drives. Later this machine was upgraded to 256K memory space and shortly after to 384K. The 2314 disk drive was replaced by a 2311 disk drive which was bought by LRIS in trade for computer time (about $200,000). Further expansions included a two-year trial by New Brunswick Education and Computer Networks (NBECN) of multi-programming and time-sharing with two IBM 2701 interfaces.

Credit and non-credit computing courses were developed in parallel with the expansion of computing facilities. This expansion resulted in the establishment of a computing centre in 1964 and of the Department of Computer Science in 1968/69. Prior to the establishment of the department, several credit courses were offered by the Department of Electrical Engineering. The Computer Science Department also offered undergraduate courses in support of other degree programs. The M.Sc. (CS) degree program was established at that time and has since grown to be one of the largest in the Atlantic Provinces. The establishment of a Masters Degree in Computer Science, which initially admitted bachelor students largely from Mathematics and Engineering, provided a quick short-term solution to the shortage of computing processionals required by the rapidly expanding computing centres and computing industry. The first Master of Science in Computer Science student graduated in 1970, followed by one in 1971, and seven in 1972.

The Bachelor of Science in Computer Science (B.Sc. (CS) degree program was established in 1972 in response to the demand from the marketplace and from students. The Department of Computer Science became the School of Computer Science to administer the new B.Sc. (CS) program.

To be continued in our next issue …

* Source: Notes and documents from the Faculty of Computer Science Archive.

Celebrating 1968 - 2008 40 YEARS of Excellence in Computer Science

Eye on CS Alumni: Ed Lawlor

Ed Lawlor is the founder and President of DeltaWare Systems Inc., an Information Technology firm located in Charlottetown, PEI. This year marks Ed's 40th year in IT. During this period, he has played many roles, including software engineer, project manager, senior manager, educator and entrepreneur.

Ed received his BSc in Mathematics from St. Dunstan's University in 1968. The same year he began his IT career with the New Brunswick Telephone Co. In 1970, he returned to university to pursue graduate studies, receiving his MSc in Computer Science from UNB in 1972.

Following graduation, Ed returned to PEI where, over the next 19 years, he held a number of senior management positions with the Government of PEI. During this period, Ed also held appointments as Adjunct Professor in Computer Science and Business Information Systems at the University of PEI.

In 1992, he founded DeltaWare Systems Inc. which now has a staff complement of over 85 employees and projects from British Columbia to the United Kingdom. DeltaWare's primary business focus is their e-health solutions and their e-business practice – the company is a Certified Oracle Partner. In its e-health wing, DeltaWare has developed and is marketing their flagship software product, Medigent©, which facilitates the collection, analysis and management of e-health records and claims.

DeltaWare has won numerous awards for innovation and business excellence, including Atlantic Canada's Top 10 Employers from Atlantic Progress magazine; Canada's Top Employers of Youth from The Conference Board of Canada; and the 2009 Canada's Top 100 Employers award by Maclean's Magazine.

Ed has been very active in his community, and in the regional and national IT scene. He is a past-chairperson of the Holland College Board of Governors; a founding member of the Information Technologies Association of PEI and its first President; a former board member of the Information Technology Association of Canada; and, from 2001 to 2006, a member of the Advisory Board for the Atlantic Innovation Fund.

He has received a number of personal recognitions for his contribution and achievements. These awards include the Greater Charlottetown Chamber of Commerce Entrepreneurial Award and the Top 50 CEOs from Atlantic Business Magazine. In 2003, he was inducted into the Prince Edward Island Business Hall of Fame and, in 2007, he was inducted into the Canadian Information Productivity Awards Hall of Fame.

Ed Lawlor: Proud UNB CS alumnus since 1972

UNB Hosts Gaming Camp

The Faculty of Computer Science Information Technology Center hosted the first-ever UNB Summer Gaming Camp for middle school and high school students on August 18-22, 2008. While at the camp, students played network games in a computer lab environment, and learned basic computer and video game programming for the PC and Xbox 360 using Microsoft XNA game development technology.

Each morning, campers played team-based computer games together. In the afternoons, they were given hands-on lessons on how to create games using state-of-the-art game development technology from Microsoft. The lessons covered the following techniques: drawing 2D sprites, moving 2D sprites, coloring, scaling and layering 2D sprites, controlling 2D sprites' velocity and detecting collisions, as well as some 3D basics. In each lesson, all campers completed their own simple demo game programs under the instructor's guidance.

Dr. Weichang Du was the primary organizer and instructor for the 2008 Gaming Camp. Dr. Du is a Professor in the Faculty of Computer Science and also serves as the Director of the Information Technology Center.

Seventeen students attended the inaugural UNB Summer Gaming Camp. There was interest from students at all levels, with 2-3 campers from each grade (6-12).

Many campers expressed their enjoyment of the camp and told the instructor that if the camp is offered next year, they will definitely come again. The instructor also received e-mails from several parents with positive and supportive feedback about the camp.

"Just wanted to drop you a line and let you know that Liam O'Donnell (my son) and Dylan Aubin both raved about your camp. They truly enjoyed their week and say that they want to go again next year, and the next, and the next." - Beth Fowler

CS Happenings...

Dr. David Bremner (Associate Professor) has been appointed to the AARMS executive board.

A paper written by Dr. Ken Kent (Associate Professor), Jonathan Lutes (BCS), and Joseph Libby (PhD candidate) won the best paper award at the International Conference on Advances in Electronics and Micro-electronics.

The UNB Faculty of Computer Science and NRC-IIT, (in cooperation with the IEEE Computer Society's Technical Committee on Security and Privacy), jointly held the Sixth Annual Conference on Privacy, Security and Trust on October 1-3 in Fredericton. Dr. Ali Ghorbani was the General Chair of PST-2008.

Three technologies developed within the Faculty were showcased at THINKNB in Saint John Oct. 29-30.