



iCORE

ALBERTA INFORMATICS
CIRCLE OF RESEARCH EXCELLENCE

newsletter

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First annual Banff Informatics Summit planned for 2004

Starting in 2004, iCORE will be organizing an annual week-long program of workshops and thinktanks aimed at elevating the interaction and profile of Alberta informatics researchers on the world stage.

The iCORE board approved the plan to establish the iCORE Banff Informatics Summit (iBIS) at its recent meeting in May.

The annual program will allow iCORE research teams to bring exceptional international researchers in informatics to Alberta to exchange research results and foster collaboration with colleagues invited from around Alberta, Canada and the world.

"The benefits of a workshop program that focuses on informatics will be felt around the province, if not the world," Dr Brian Unger, president

and CEO of iCORE says. "A Banff research retreat provides a world-class forum that helps to foster the exchange of ideas and provides an opportunity to develop and publicize a global reputation for Alberta as a place that supports excellent and internationally competitive informatics research."

The summit will be organized around themes identified by iCORE Chairs and Professors. Participation will be by invitation only, and will typically include iCORE Chairs and their research teams, iCORE collaborators nationally and internationally, potential collaborators from around the world, research leaders in target areas, and other Alberta researchers, graduate students and industry staff working in informatics-related research.

Initially, the summit will be made up of a three-day research exchange, plus two days of planning meetings. This will include 80 people for three nights (June 6, 7, 8), and 20 people for the last two nights (June 9, 10). iCORE will cover the costs of accommodation and meals for invited participants.

2004 Schedule

Sunday, June 6 - Tuesday, June 8
RESEARCH SUMMIT

Wednesday, June 9 - Thursday, June 10
INTERNATIONAL RESEARCH ADVISORY
COUNCIL MEETING

Friday, June 11, 2004
BOARD MEETING

A call has been issued to iCORE Chairs and Professors to propose research themes for the three days of the research summit. The program may be expanded for iCORE-related workshop programs, if interest warrants.

For more information, contact Carole Carlton at (403) 210-5335 or carlton@icore.ca.



Dr Robert Wolkow (right) was welcomed to iCORE by President and CEO Dr Brian Unger (left) as the iCORE Chair in Nanoscale Information and Communication Technologies at a launch on April 11 at Government House in Edmonton.

iCORE visiting professors enrich Alberta teams

Three international scholars will be visiting Alberta this year for periods up to six months as part of iCORE's newly implemented Visiting Professor grant program.

Jan Bosch, Software Variability Management

Dr Jan Bosch from the Netherlands is visiting the Department of Computing Science at the University of Alberta until August.

Dr Bosch will investigate collaborative opportunities in software engineering during the four months of his initial visit, and the subsequent visits of several week's duration later in the academic year. He will concentrate on research in assessment of software variability, to build on existing projects with the University of Alberta. Dr Bosch intends close interaction with the researchers in SERL (Software Engineering Research Laboratory in Computing Science). In addition, he plans to interact with two University of Alberta spin-off companies, Avra Software Lab (www.avrasoft.com) and Oneware Software Corporation (www.oneware.ca) as part of his variability assessment research.

Professor Bosch is an internationally recognized leading researcher in software engineering. He is

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currently Professor of Software Engineering, Department of Computing Science at the University of Groningen, the Netherlands. He obtained his MSc in Computer Science from the University of Trente, the Netherlands, and his PhD from Lund University, Sweden.

iCORE has committed \$60,000 for Dr Bosch's six-month visit to the Computing Science Department, commencing May 1, 2003.

Dr Kamil Zigangirov, High Capacity Digital Communications

The Department of Electrical and Computer Engineering at the University of Alberta will be hosting Dr Kamil Zigangirov this fall.

Professor Zigangirov's visit is expected to enhance the strength of the High Capacity Digital Communications lab in novel error control code techniques for application in MIMO (Multiple Input Multiple Output) and CDMA (Code Division Multiple Access) designs. His visit will also provide a valuable resource for the growing number of graduate students who are specializing in error control coding techniques. Several workshops and seminars in the area of error control coding fundamentals and applications are planned.

Professor Zigangirov is a leading expert in the application of algorithmic error control coding. He made early and fundamental contributions to sequential decoding of convolutional codes. He obtained his Doctorate of Technical Sciences from the Council of Cybernetics of USSR Academy of Sciences in 1977. Since 1993, he has been a Professor in the Department of Information Technology, Lund University, Sweden.

The iCORE Visiting Professor grant will fund Dr Zigangirov's two-month visit scheduled to start in October 2003.

Dr Ian Witten, Digital Libraries

Dr Ian Witten will visit the University of Lethbridge in the Department of Math and Computer Science for July to October of 2003 and 2004.

Dr Witten will pursue research in digital libraries and data mining, including existing international collaborative activity. The goals for the visit include stimulation of the computer science research program, laying the groundwork for a Digital Library Centre in Lethbridge, promoting collaboration with New Zealand universities, and exploring ways in which Dr Witten can contribute on a long-term basis.

Professor Witten's research expertise encompasses computer speech, user modeling, adaptive interfaces, documentation browsing systems, data compression, machine learning, and knowledge acquisition. Since 1991, he has been a Professor in the Department of Computer Science at the University of Waikato, New Zealand. Previous to that, he spent 10 years at the University of Calgary, including three years as Head of the Computer Science Department. He obtained his MSc in Mathematics, Statistics, and Computer Science from the University of Calgary, and his PhD in Electrical Engineering Science from the University of Essex, England.

iCORE has committed \$232,000 for two four-month visits and support for associated graduate student visits for Dr Witten's Visiting Professorship in Digital Libraries. The University of Lethbridge plans to build on the Visiting Professorship by funding \$228,000 over two years to provide for recruitment of a new tenure stream position, graduate student support, and installation and support of the Greenstone Digital Library software.

Industry Research Grants available to ICT researchers

A number of industry research grant programs available to researchers in Alberta may be of interest to iCORE research team members. Intel, Cisco, and Telus all have programs.

Intel

Intel is interested in supporting selected university researchers doing long-term research and education in wireless applications. Specifically, they are looking to fund research and curriculum that will use Intel's Personal Client Architecture (Intel® PCA) for both innovative research and education.

The Intel® PCA university program has two major initiatives designed to drive the creation of an academic ecosystem based around the Intel® PCA and software solutions. The first supports the creation of application programming curricula using Intel® PCA in a classroom setting. The second supports long-term application development research programs investigating new applications for the Intel® PCA. Intel will provide cash grants and equipment typically for three years. More information on the Intel® PCA is available at <http://www.intel.com/pca>. A request for proposals is now under way.

Cisco

Cisco has a University Research Program to support research in areas specific to networking technology: routing protocols, high-end routers, high-speed switching, congestion control, optical nets, control plane, multicast, IPv6, QoS, MPLS/TE, voice over IP, video over IP, wireless, mobility, storage networking, CDN (caching, etc.), network management, security, middleware, measurement and analysis, simulation and modeling, micro nets, ad hoc nets, and end-to-end protocols. Projects are funded to a maximum of US\$100,000. More information is available at: <http://www.cisco.com/warp/public/750/arti/urp/index.html>.

Telus

Telus operates two programs that support entrepreneurial ventures within Canada. One is a focused venture fund set up to secure strategic growth options. The ventures fund is a "value add" investment fund that brings together a communications business alliance coupled with additional support from venture capital and corporate services partnerships and exchanges. The Telus Foundation, a private charitable foundation, also administers funds to broadcast and new media projects. More information is available at: <http://about.telus.com/funds/>.

For more information, contact Lynn Sutherland at sutherland@icore.ca.

New Chair named to iCORE's External Review Committee

John Mylopoulos, a computer science professor at the Bahen Centre for Information Technology at the University of Toronto, will chair iCORE's External Review Committee, replacing Dr Gordon MacNabb, who served in this role since iCORE's inception. Dr MacNabb, who was the founding president of the Natural Sciences and Engineering Research Council, has spearheaded the external review process that has led to the 13 awards iCORE has made to date. Dr MacNabb will remain on the committee.

About the iCORE External Review Committee (ERC)

The ERC plays an essential role in ensuring that iCORE awards are made based on assessments by unbiased experts in the field in question.

Three to five members sit on this committee, which is created by the CEO of iCORE, in consultation with the Chair and Vice Chair of the board. In order to be appointed to the committee, individuals must have extensive academic research experience with information and communications technology (ICT). The committee may not include academic or industry people who live or work in Alberta, and must include one or more individuals from outside Canada.

When proposals are made to iCORE, they are initially reviewed by an Internal Review Committee, which works with the applicant to ensure the proposal meets the basic criteria for an iCORE award. Proposals that meet these criteria are then forwarded to the External Review Committee (ERC). The ERC then selects a number of non-Albertan referees who are experts in the candidate's field, solicits referee reports, evaluates the candidate's record based on these referee reports and then produces a report that includes a recommendation. The evaluation and recommendation is based primarily on the candidate's research and research leadership record. This report is provided to the Internal Review Committee, the CEO and to the Board.

In addition to Dr MacNabb, the members of the ERC are:

Dr John Mylopoulos (Chair)

Dr John Mylopoulos is currently leading a number of research projects and is principal investigator of both a national and a provincial Centre of Excellence. His research interests include information modelling techniques, covering notations, implementation techniques and applications, knowledge based systems, semantic data models, information system

design and requirements engineering. He leads a project on software evolution, leads a project on organizational analysis and design, works on a software migration project funded by IBM Canada and NSERC, and works with Ontario Hydro on a project intended to develop intelligent assistants for power plant operators. Professor Mylopoulos received his BEng degree from Brown University in 1966 and his PhD degree from Princeton in 1970, the year he joined the faculty of the University of Toronto. Mylopoulos is the recipient of the first Outstanding Services Award given by the Canadian AI Society (CSCSI), a co-recipient of the best-paper award of the 1994 International Conference on Software Engineering, and a fellow of the American Association for Artificial Intelligence. He has served on the editorial board of several international journals.

Dr John Hollerbach

Dr John Hollerbach is a Professor and Director of Graduate Studies in the University of Utah's School of Computing. Dr Hollerbach is also a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), the editor of the International Journal of Robotics Research, and the director of the Virtual Environments and Teleoperation (VETO) Lab at the University of Utah. Dr Hollerbach's areas of research are in virtual reality, teleoperation, robotics, and human motor control. In his spare time, he enjoys skiing.

Dr Nicholas Pippenger

Nicholas Pippenger holds a Canada Research Chair in Computer Science at the University of British Columbia. He received a PhD in Electrical Engineering from MIT in 1974. He worked for IBM at the Thomas J. Watson Research Center from 1973 to 1980, and at the

San Jose Research Laboratory (later the Almaden Research Center) from 1980 to 1989. He was named an IBM Fellow in 1987. Since 1988 he has been a Professor in the Computer Science Department at the University of British Columbia. His research interests centre in theoretical computer science, but also extend into communication theory and mathematics. Dr Pippenger is a Fellow of the Royal Society of Canada (Academy of Science), a Fellow of the Institute of Electrical and Electronics Engineers, and a Fellow of the Association for Computing Machinery. He is a member of the American Mathematical Association, the Mathematical Association of America and the Society for Industrial and Applied Mathematics. He is the author of *Theories of Computability*, published by Cambridge University Press in 1997.

Dr Eric Grimson

Dr Eric Grimson is a Professor of Computer Science and Engineering at the Massachusetts Institute of Technology, and holds the Bernard Gordon Chair of Medical Engineering. He also holds a joint appointment as a Lecturer on Radiology at Harvard Medical School and at Brigham and Women's Hospital. He received a BSc (Hons) in Mathematics and Physics from the University of Regina in 1975 and a PhD in Mathematics from MIT in 1980. Grimson currently heads the Computer Vision Group of MIT's Artificial Intelligence Laboratory, which has pioneered state of the art systems for object recognition, image database indexing, image guided surgery, target recognition, site modeling and many other areas of computer vision. Recently, his group has been active in applying vision techniques in medicine: for image guided surgery, minimally invasive surgery and telemedicine.

U of L research activity ramping up

The University of Lethbridge, often overshadowed by the larger research universities in Calgary and Edmonton, is starting to develop iCORE-supported research activity. The University of Lethbridge will host an iCORE Visiting Professor, Dr Ian Witten, this fall and in 2004. The first University of Lethbridge graduate student to receive an iCORE Graduate Student Scholarship has also been awarded and started in May. These advances in research strength come on the heels of a major announcement in early June about a unique astronomical instrument research lab newly opened at the university. The SPIRE (Spectral and Photometric Imaging Receiver) is supported by the Canadian Space Agency, and is one of three instruments being built for the Herschel Space Observatory, a billion dollar project scheduled for launch in 2007.

Year in Review now available

iCORE's annual report is now on press.

To request copies, please contact Betty Ann Snyder at (403) 210-5340 or snyder@icore.ca.

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President's report

The final report of the US Blue Ribbon Advisory Panel on Cyberinfrastructure was issued in June. This panel of experts was tasked by the National Science Foundation to evaluate current investments and make recommendations on future investments in the information and communications technologies that form the infrastructure that currently supports many forms of research.

Here in Alberta, a similar task force has been set up, with a mandate to look at current investments in ICT infrastructure and programs, and make recommendations for Alberta's future. What can the US exercise tell us?

Its overarching finding is "that a new age has dawned in scientific and engineering research, pushed by continuing progress in computing, information, and communication technology, and pulled by the expanding complexity, scope, and scale of today's challenges." It recommends a large-scale, interagency program to design and build the cyberinfrastructure that would support scientific and engineering research and allied education, and to coordinate coinvestment from other agencies, universities and industry. "The cost of not acting quickly or at a subcritical level could be high," the report says, "both in opportunities lost and in increased fragmentation and balkanization of the research communities."

In Alberta, the scale and scope is smaller, but the issues are similar. We look forward to the Alberta ICT Task Force recommendations. We too advocate increased investment and coordination to help make Alberta a strong, unique part of the global e-research and e-learning developments, because we believe it is a key ingredient of Alberta's future prosperity.

If you are looking for some alternative summer reading, the report can be found in its entirety at <http://www.cise.nsf.gov/evnt/reports/toc.htm>.

Brian Unger, President and CEO

New iCORE board member appointed

Dr Gary Kachanoski, Vice President (Research) at the University of Alberta has been appointed to the iCORE Board. Dr Kachanoski is a professor in the Department of Renewable Resources at the University of Alberta. From 1996-2001 he was Dean, College of Graduate Studies and Research, and Professor at the University of Saskatchewan. He was also appointed Dean, Virtual College of Biotechnology, a university-wide initiative to coordinate teaching and research in the social, ethical, legal, commercial, and science issues related to biotechnology. From 1985 to 1996 he was at the University of Guelph, finishing his appointment there as Chair, Department of Land Resource Science, and Director of Research (Environment and Natural Resources) in the Vice-President (Research) Office. At Guelph he had significant involvement in the planning, coordination, and transfer of research and technology to industry, government, user groups, and the general public. He received his BSc (Honours Biology 1976) and MSc (Soil Science 1980) from the University of Saskatchewan, and his PhD (Soil Physics 1984) from the University of California, Davis. He continues to have a strong research program with main interests in the physics of water and chemical transport through soil, and has received many awards from peer and professional organizations for his distinguished contributions.

iCORE advisors point to energy and environment

The International Research Advisory Council (IRAC) has recommended increased focus on ICT support of energy and the environment. At its recent day-long retreat in Banff, the five members supported the use of the Industrial Chair Establishment (ICE) grant program to create Chairs and associated research teams working on the application of information and communications technology in key Alberta sectors. For more information on iCORE's advisory council members, visit www.icore.ca and go to "about iCORE."

Informatics training offered for energy sector

Training for an application of information technology in the energy sector will be offered this fall by the Computer Modelling Group. Engineers, geologists and technical personnel who would like to use advanced simulation technology in pre- and post-processing capabilities are invited to a number of two-day workshops. Sessions are offered in laboratory experiment simulation, fluid characterization, thermal recovery process and coalbed methane. Basic reservoir engineering in most cases is required. Simulation software training dates run from September to December 2003. Contact training@cmgl.ca.