

Wrapping up the Powering Innovation National Summit

Innovation “sherpa” encourages Canada to focus on strengths

Canada must focus on its strengths, was the advice given by innovation “sherpa”, Dr. John Kao. Sharing examples of how other countries are chasing the innovation carrot by building on their strengths, the innovation strategist and author of the best-selling book, *Innovation Nation*, got audience members excited about how Canada can innovate and stand out on the global stage.

Dr. Kao, considered a leading authority on the subjects of innovation, organizational transformation, and digital media, was among the feature attractions at ORION and CANARIE’s Powering Innovation: A National Summit, held at the Metro Toronto Convention Centre earlier this month.

This year, ORION and CANARIE joined forces to co-host a national Summit that focused on issues of research and innovation enabled by new and advanced technologies.

“We at ORION and CANARIE are very happy with the success of this national conference,” said Phil Baker, ORION President/CEO. “The feedback has been very positive so far, especially on the engaging sessions concerning innovative technologies that are now transforming the way we conduct research, collaborate, teach and learn. We heard from exciting keynotes and colleagues on important issues that span the full spectrum of research, education and advanced networking in our country.”

Internationally distinguished physicist and Toronto native Robert J. Birgeneau, Chancellor and Professor of Physics at the University of California, Berkeley and former president of the University of Toronto, gave the Summit opening address and explored the theme of cross-border collaborations in research.

Founding president and CEO Douglas Van Houweling gave a snapshot of the vision of Internet2, the advanced network backbone in the United States.

In a compelling (yet not for the faint-hearted) presentation, forensic entomologist Dr. Gail Anderson talked about her work as a forensic



Delegates listen to keynote speaker, Doug Van Houweling, President and CEO of Internet2.

consultant to the RCMP and police across Canada, and about her latest research into the decomposition process of pig carcasses in the Saanich Inlet using the Victoria Experimental Network Under the Sea (VENUS), a cabled ocean observatory designed as an undersea laboratory for ocean researchers. VENUS delivers real-time information from the seafloor via fibre optic cables connected to instruments at the University of Victoria.

Lunch keynote speaker, Adam Froman, president and CEO of Delvinia Interactive, a digital marketing and interactive firm, spoke about how companies typically fall short of innovation by being afraid of change, outlining the “6 digital diseases” and why they should be avoided.

Breakout sessions and panel discussions on topics ranging from green IT and virtual organizations, to cloud computing and commercializing innovation, were a major feature of the program.

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Researchers await deluge of terabytes of LHC data

While scientists wait for the “terabytes” of collision data that will be transmitted to labs around the world from the Large Hadron Collider experiment at CERN in Switzerland, a dedicated team of Ontario researchers are making preparations to receive and analyze what they expect could be a deluge of up to 100 terabytes of data each month.

The data will be transmitted over ultra-fast optical research networks, including Ontario's own ORION state-of-the-art network.

The highly anticipated \$8-billion Large Hadron Collider (LHC), located under ground at the France-Switzerland border near Geneva, is the world's largest and most powerful particle accelerator as well as the most complex science experiment ever developed. Its main purpose is to explore the validity and limitations of the Standard Model, developed 30 years ago, which still provides the theoretical picture for particle physics.

For some researchers on award-winning physicist Prof. Robert S. Orr's team, this project could well represent their life's work. Some have already been associated with the project for nearly 15 years, and they expect to be involved in working with and analysing the data for quite possibly another 15 years.

For Prof. Orr, a mountain climber who admits interest in fuzzy animals, Jeep Wagoneers and Japanese culture, the LHC coming on line represents a personal, professional milestone, having been involved at the cutting edge of particle physics for nearly 30 years.

The Toronto team, which already consists of four primary researchers, 15 post-graduate researchers and one computer specialist, includes some of the country's most senior researchers, including Professors David Bailey, Peter Krieger, Pierre Savard, Richard Teuscher, William Trischuk, and Pekka Sinervo.

U of T's role is focused on a sophisticated experiment known as ATLAS (A Toroidal Lhc Apparatus). The 7,000-tonne assembly, parts of which were built at U of T, tracks and measures the energy of particles emerging from the proton collisions in the LHC: particles that could be fragments of the elusive Higgs Boson.

“There's an awful lot of work to do,” says ORION Award winner, Professor Orr, who is leading a UofT team anticipating a deluge of data that will soon descend upon those involved in the ATLAS project.

It is anticipated that up to 100 terabytes of data will be flowing to the Toronto lab when the LHC's “collision data” starts to be shared with Tier One and Two sites around the world.

While some experiment data was transmitted to participating researchers recently, Canadian researchers involved in the ATLAS project are awaiting the experiment's raw “collision” data to stream out to Tier One and Two sites around the world when magnets recently damaged in the Collider are replaced over the next several months.

Even data summaries can be 100TB in size and more. When the LHC is at full speed, we can anticipate up to three petabytes of data being transmitted and shared over the various world sites.

Prof. Orr and his team expect that the volume of raw data that will need to be received and processed will be significantly greater than first anticipated.

“Having access to ORION and CANARIE is critical. We simply would not be able to participate in this project without these networks,” says the celebrated researcher.

The team is also anticipating the completion of the U of T's new SciNet high-performance computing facility and its link-up to the ORION and global research grid. SciNet's massive computational capabilities are critical to analyzing the flood of data.

For physicists involved in this experiment, having access to world-scale advanced networks are a god-send. “In the past, we had to store data on magnetic tapes and send them by air freight,” says Prof. Orr.

Now, he says, the process involves submitting “jobs” over the grid of distributed high performance computers “and connectivity is critical for that.”

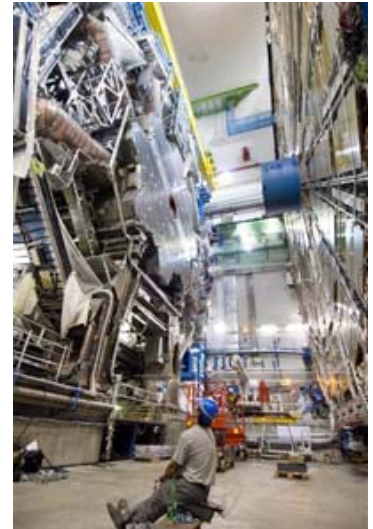
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One of the elements Prof. Orr likes to emphasize is the distributed nature of the project in Canada, and the collaboration of the ATLAS project teams and the TRIUMPH facilities in British Columbia, and the role of the University of Toronto and several other Canadian universities, all interconnected over the CANARIE, ORION and other regional networks.

As ORION award winner, Prof. Orr says he very proud of the award, and of the acknowledgement from Premier Dalton McGuinty, when he was honoured at the ORION Award ceremony in 2006, winning the ORION Discovery Award of Merit.

Visit the ATLAS Canada web site at <http://www.atlas-canada.ca/>

Learn more about the important of advanced networking and how it is supporting the collaborative nature of the research of the LHC's data at the Internet2 wiki page, where a an informative video is available for viewing.: <http://www.internet2.edu/lhc/>



ATLAS at CERN.

Inspiring active learning

Carleton offers world's first lecture mashup application

For one university, interactive learning has just gone ten steps further. Carleton University's and GoTuit's lecture mashup initiative, VideoNotes, is a world-class student-centred learning application that showcases how advanced high speed networks like ORION and Web 2.0 technologies can be brought together to enhance student engagement and learning.

Until recently, most mashups consisted of short format, popular types of video consisting of sports highlights and music videos, which makes Carleton University's VideoNotes initiative the world's first mashup for educational purposes.

The VideoNotes initiative began in January 2008 with Dr. Dan McIntyre's Introductory Psychology as a pilot project. All 824 students registered in this course had been encouraged to mash-up and share Dr. McIntyre's lectures. VideoNotes gave the students the ability to create searchable videos by using keywords and then to edit, recombine and share with each other customized versions of class lectures. The application allows students to actively turn teacher-centred lectures into a student-centred learning experience, encouraging students to be active and involved participants in their learning.

Ottawa's Carleton University has a history of instructional innovations. In 1997, four instructional television courses (now Carleton University Television - CUTV) were multicast in cooperation with CANARIE and ONET (ORION's predecessor) on MBone. In 2005, Carleton became the first institution in Canada to offer Internet Video on Demand (VOD) service for all of its distance education undergraduate courses (78 courses in total). In October 2006, Carleton became the first postsecondary institution to release an entire course as a video podcast. Each academic year 5500 students choose to learn through CUTV's Video on Demand service and several thousand individuals around the world have subscribed to CUTV's course podcasts.

While podcasts and Internet VOD service have enhanced learners' flexibility and convenience, students are still presented with a delivery methodology that encourages passive learning. Students would typically watch their video lectures on their computers or media players with no interaction or participation on their part, aside from note-taking.

Alternatively, the VideoNotes initiative at Carleton University, developed in partnership with Boston-based GoTuit Inc., introduces participation and engagement with the content to enhance student learning. By providing learners with an online application that allows them to mash-up lectures, they are creating more meaningful and personalized learning.

Here's how it works: The VideoNotes application is a web-based Adobe Flash portal that allows learners to insert keywords, titles, and descriptions to user-defined clips of a webcast lecture, and then allow them to break apart the clips and recombine and arrange them into a new, personalized lecture-based instruction (called a 'mashup'). Students can then choose to share their mashups with other students in the class, post it to their Facebook pages, and even mashup an existing mashup from another learner – thereby, helping to foster a social learning environment.

The process of deciding what is important and how best to use key-

words facilitates understanding and learning is considered much better than the passive act of simply watching lectures.

Creating a lecture mashup encourages students to make a conscious decision to order the content in a particular way to suit their own learning needs.



"By allowing students to create their own lecture highlight reels with their own comments and annotations, we are providing a rich, personalized learning and enhanced studying experience," said Patrick Lyons, Assistant Director, Instructional Technologies at Carleton's Educational Development Centre. "VideoNotes is an example of how we continue to integrate technology and expand the educational experience at Carleton."

The new application - adapted to enhance Carleton's teaching and learning platform - is an excellent example of how advanced networks enable student-centric learning initiatives, and more broadly, contribute to student academic success. As well, the video streams are distributed across Akamai's content delivery network, which is accessible through ORION, ensuring fast and efficient data transmission and lower bandwidth costs.

"Essential to the initiative is reliable content delivery which ensures that students have immediate access to the lecture video streams, and as they work with the content to create mashups, they are never interrupted by slow or intermittent delivery of content," says Lyons.

Furthermore, VideoNotes is a good example of how a public institution can successfully partner with the private sector to produce an innovative educational application that stimulates learning and contributes to student academic success.

Based on a post-course student questionnaire, of the students who made remixes, 88% stated that this was helpful or very helpful to their learning. Among students who viewed other students' mashups, 78% reported that it was helpful or very helpful to their learning. The majority of students who used VideoNotes (59%) used it more than 13 times during the term. In addition, student performance appears to be directly tied to using VideoNotes. The class mean was 64%, while students who reported creating mashups achieved significantly better: a mean of 80%. Between January 16 and May 1, 2008, VideoNotes received 10,893 visits and students spent an average of 4 hours each month in the application.

Student feedback has been positive. One student claimed that the application was "absolutely fabulous. I have done much better on my exams this semester because I was able to find anything I needed clarified straight from my lectures." Another student said that she found VideoNotes "very user-friendly, convenient and helpful."

In response to such enthusiastic feedback, Carleton is planning to replace its existing Internet Video on Demand service with VideoNotes, making it available to all 78 CUTV courses by January 2009. Learn more about VideoNotes at <http://videonotes.carleton.ca>.

ORION connects its first research park and a northern Ontario commercialization centre

ORION recently announced two newly-connected institutions that have joined its member roster of some 80 research and education facilities across Ontario.

Innovation Park at Queen's University in Kingston is the first research park to connect to ORION, and the new Innovation and Commercialization Centre of the Northern Centre for Advanced Technology Inc. (NORCAT) in Sudbury will now be able to expand collaboration opportunities with innovation partners both within Ontario and around the world.

Officially opened last June, Innovation Park at Queen's University is becoming a hub for scientific collaboration and business development efforts in the Kingston and Eastern Ontario region. Through co-location of academic and industry researchers, service providers and commercialization experts, the Park is helping researchers and entrepreneurs to create, develop and market their innovations.

An ORION connection represents the opportunity to attract partners looking to expand their research and development collaborations with Queen's and other institutions in the region. This is an excellent example of how the unique capabilities of the ORION network can be used to enhance and support more collaboration between industry and university/college researchers.

NORCAT has been a leader in occupational health and safety training, mine training, technology innovation and commercialization. It has also contributed to critical development with such partners as NASA and the Canadian Space Agency. It is the central location for innovation development, occupational health and safety resource centre and eLearning production.

NORCAT's new home features an incubator facility and has centralized NORCAT's technology development and industrial services, bringing a new service for small businesses and pre-commercial entrepreneurs.

For more information, read the official news releases at www.orion.on.ca/recent-releases.html.

ORION Awards celebrate international collaborations, learning innovations, leadership

International research collaborations and innovations that are transforming medical training and film production, and taking teaching and learning to the next level in virtual environments, have been recognized with Ontario's annual ORION Awards.

Presented at the "Powering Innovation: A National Summit" conference at the Metro Toronto Convention Centre on Nov. 4, the ORION Awards recognize achievements in Ontario research, education and scientific discovery.

This year's top award winners were **Ryerson University and the innovative CineGrid project, the Northern Ontario School of Medicine and its ground-breaking e-learning programs, and Windsor community network pioneer, Dr. Todd Sands.**



Awards of Merit were also handed out to York University's CIO **Bob Gagne**, and Canada Research Chair in Optical Networks and professor in the School of Information Technology and Engineering at the University of Ottawa, **Dr. Hussein Mouftah**, an acclaimed researcher who has contributed to the development of the Internet.

Other Award of Merit winners included the **Virtual Researcher on Call (VROC) program; Loyalist College's Virtual World Design Centre; and Alice (Experiments) in Wonderland: A Convergent Telematic Performance**, a live digital theatrical performance collaboration involving the University of Waterloo and partners in the U.S. over advanced networks.

"This year's winners represent the cutting edge of technology and innovation, much of it pioneered right here in Ontario," says Phil Baker, President and CEO of the Ontario Research and Innovation Optical Network (ORION), which presents the awards.

"It's vital to celebrate these home-grown success stories and raise awareness of the phenomenal work that our scientists, researchers and educators are engaged in, and the impact it is having here at home and around the world," he said.

In accepting his award, Dr. Sands took the opportunity to challenge technology leaders involved in the provisioning of services across the ORION network, "to move that technology and the implementation of services on that backbone out to the users at the edge of these networks. Providing that measure of value and investment to the funders will really help in long term sustainability goals, and so that they become part of the foundation within communities, along with what we now see as roads, sewers and other infrastructure."

Read more about the recipients and view the photos at www.orion.on.ca/2008awards and video stream of the Nov. 4, 2008 award presentations.

Sun Microsystems Chief Technologist joins ORANO board

ORANO's Board of Directors recently welcomed its newest member: **Brian Down**, Chief Technologist and Principal Engineer with Sun Microsystems of Canada Inc.

Brian has held Chief Architect positions in both Sun's Global and Americas Data Center Practices over the past nine years, focusing on Enterprise migration and legacy transformation. Working with Sun's largest clients around the globe he has developed best practices that allow business and government to rationalize their application portfolio and, in a phased approach, virtualize, redeploy and manage the new environment on a modern, cost effective hardware platform.

Brian is a published author, a recognized expert on migration to the Solaris operating system and currently holds the title of Principal Engineer within Sun's global technology organization. He has a Masters of Science degree in Computer Science from the University of Toronto and Bachelor of Science (Hons) degree in computer science from Memorial University.

Brian recently served as a member of the research board for the Nortel Network Institute at the University of Waterloo and serves as the Chair for the Board of Directors for the Consortium for Software Engineering Research (CSER).

"We are very pleased that Brian has joined our board," said Board Chair, Maxim Jean-Louis, President and CEO of Contact North/Contact Nord. "He brings a wealth of knowledge and experience and he will make a significant contribution to the network and to our organization."

"Brian has an exceptional understanding of the rapidly evolving technology environment that is transforming the way we collaborate, conduct research, teach and learn," said Phil Baker, President and CEO of ORANO. "That will be invaluable to us as we focus on providing the critical infrastructure and services we need to support research and innovation in Ontario."

Brian joins other ORANO board members, including Anne Sado, President of George Brown College in Toronto, and Vice Chair of the ORANO board; Lisa de Wilde, CEO of TVOntario; Sara Diamond, President of the Ontario College of Art and Design; Dr. Alan George, Associate Provost, Information Systems and Technology and interim Dean of Graduate Studies at the University of Waterloo; Dr. Khaled El Emam, Canada Research Chair, Electronic Health Information Associate Professor, Faculty of Medicine, University of Ottawa; Terry Mosey, Past Executive Vice-President, Bell Canada; Robert J. Kennedy, National Education Consultant, Galileo Educational Network and Field Development Consultant, Canadian Education Association; and Patrick Spence, VP, Cingular Wireless & Rogers Wireless Business Unit, Research In Motion (RIM).

Read the news release at [www.orion.on.ca/news/pdf/Brian Down Joins ORANO Board.pdf](http://www.orion.on.ca/news/pdf/Brian_Down_Joins_ORANO_Board.pdf).

ORION reaches milestone—now supports MPLS across network

ORION engineers reached an important milestone when they finalized a major upgrade to the network's core architecture to fully support MPLS (Multi Protocol Label Switching) across the entire ORION platform.

The process was finalized Nov. 27, with the MPLS configuration of ORION's northern segments, effectively completing the migration of the network's core platform to the latest routing and distribution technology .

"This is a very important milestone for ORION," says Senior Director of Engineering and Network Operation, Sam Mokbel. "ORION is now a fully hierarchical network equipped with latest core routers, supporting MPLS and other services."

The first phase involved the installation of Juniper Networks' new M120 routing equipment at ORION's Points of Presence (PoPs) in Peterborough, North Bay, Toronto and London.

The new gear supports next-generation Internet Protocol applications, including IPv6, MPLS (Multi Protocol Label Switching), QoS (Quality of Service) and circuit emulation.

"ORION is one of the largest networks of its kind in the world, and migrating to a new core routing and distribution architecture is relatively complex. It required significant planning and precision, while maintaining the core network availability during the phased implementation."

"This project required a lot a collaboration between our members, the vendors and our engineering team," says Mokbel.

"We are very proud of our team," says Mokbel, highlighting the many long nights and weekend work over the course of almost 18 months by ORION IP Network Engineers, Saqib Chughtai and Mansoor Khan and Network Operations Engineer, Emmanuel Lebel.

The core routing upgrade was made possible with financial support from CANARIE, Canada's national advanced network organization.

Innovation “sherpa” encourages Canada to focus on strengths ...

Wrapping up the Powering Innovation National Summit

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Keynote speaker John Kao (left) and CANARIE President & CEO Guy Bujold (right) share a laugh.

The Ontario College of Art & Design (OCAD) partnered with SHARCNET to host “Advanced Visualization: A Boom with a View,” chaired by OCAD president, Sara Diamond. The session heard from experts and innovators, such as Dr. Chaomei Chen of Drexel University, who are leading the use of advanced visualization technologies in science and design and transforming collaboration and research in such diverse fields as bioinformatics, human-computer interaction, geography, and environmental sciences.

For many delegates, the Summit gave them their first look at critical scientific research facilities and projects that few Canadians are aware of, yet help position Canada among the world’s leaders in many fields. Projects that were presented and discussed included NEPTUNE and VENUS, SAFORAH, CBRAIN and the Canadian Space Science Data Portal.

The Summit looked at how to fully engage Canada’s researchers in adapting and taking full advantage of the new and emerging enabling “cybertechnologies” that are helping to drive innovation and scientific discovery around the world. Cybera, Alberta’s advanced network organization, also played a critical role in planning the Summit, and brought insights on the province’s efforts to deploy Canada’s first “cybertechnology” strategy.

Wrapping up the Summit activities, a panel discussion took place on bridging the gap between researchers, CIOs and IT specialists at postsecondary institutions. Research and technology leaders from across Canada explored how institutional leadership can address the delivery of a campus IT infrastructure to support pure and applied research in universities and colleges.

In addition, a number of exhibitors showcased their products and services and networked with Summit delegates. These included BridgeWave Communications, Cogent Communications, George Brown College, Innovation Park at Queen’s University, Inometrix Inc., Juniper Networks, McMaster Innovation Park, MIRARCO Mining Innovation, Ontario College of Art & Design, Optimum Communications Services, System-On-Chip Technologies, Tiscali International Network, and York University.

The Summit was made possible by the generous contribution of several sponsors, including gold sponsors Juniper Networks and Tiscali International Network (also exclusive sponsor of the Summit Reception); silver sponsor SHARCNET; bronze sponsors Bell, the Advanced Broadband Enabled Learning Program, Cogent Communications, Colleges Ontario and IBM; and partner sponsors Atria Networks, Auto 21, Cybera, the Ontario Centres of Excellence, the Ontario College of Art & Design, Polycom, Ryerson University, and Tech Media Reports.

View video streams of the main stage proceedings, slide presentations and photo gallery at www.orioncanariesummit.ca.



Andre Quenneville (left) and Tim Kim (right) of ORION at the ORION-CANARIE joint booth.

ORION Research and Education News

The ORION Research and Education News provides news and information of interest to users of the Ontario Research and Innovation Optical Network and to the worldwide research and education community.

ORION is an advanced high-speed fibre optic network that connects research and education institutions to each other and to colleagues around the world. ORION is owned and operated by the Optical Regional Advanced Network of Ontario (ORANO).

Visit our web site www.orion.on.ca or write the Editor at info@orion.on.ca. Subscribe at www.orion.on.ca/subscribe-news.html.

Stephen Hawking finds second 'research home' at Perimeter

Waterloo's Perimeter Institute for Theoretical Physics (PI) recently announced the appointment of internationally regarded scientist Prof. Stephen Hawking to the position of Distinguished Research Chair. Prof. Hawking will conduct regular stays at PI in coming years, beginning in the summer of 2009. Director Neil Turok said, "The appointment marks a new phase in our recruitment that will see leading scientists from around the world establish a second 'research home' at Perimeter Institute." Learn more at www.perimeterinstitute.ca.

U of T Scarborough opens science research building

The University of Toronto Scarborough recently opened its new Science Research Building, a facility that provides collaborative space for interdisciplinary teaching and research. The 6,080-square-metre building is home to 16 principal investigators and their research staff of graduate students and post-doctoral fellows. On the first floor researchers examine the impact of the physical and social environment on brain function and response. The second floor is directed towards the study of plant form and function, with the ultimate aim of improving crop productivity and value. Researchers on the third floor are using sophisticated technologies to identify, track and assess the impact of dangerous contaminants in the environment. The open concept design of the laboratory space with adjacent graduate student and post-doc desk zones intends to stimulate collaborative activity between groups of researchers and increase opportunities for innovation. Read more at www.news.utoronto.ca.

World-class marine simulation centre opens at Georgian

An extensive \$7.8-million renovation took place at Georgian College's Owen Sound campus to upgrade and modernize the facilities and training equipment at its Great Lakes International Marine Training Centre (GLIMTC). The newly-opened 20,000-square-foot facility is equipped with four navigational training bridges designed to simulate real system interfaces including modern ARPA/Radar, ECDIS, AIS, GMDSS communications, and the most up-to-date integrated navigation systems on the market today. Upgrades allow the College and the marine industry to keep up with the demand for skilled professionals, said Archie Dickson, Director of GLIMTC. The new facility officially opened last month. Read more at <http://www.georgianc.on.ca/>.

Canada, California campuses agree to combat GHG emissions

In one of the first efforts of its kind, universities in Canada and California recently pledged to work together to reduce greenhouse gas emissions on their campuses while developing "green cyberinfrastructure" – information technology that improves energy efficiency and reduces the impact of emissions on climate change. A Memorandum of Understanding was signed recently by the University of British Columbia (UBC), the University of California, San Diego, and Prompt Inc., a non-profit corporation that fosters university-industry partnerships in research and development in the ICT sector. The MoU signing took place at the third Summit of the Canada-California Strategic Innovation Partnership held last month in Montreal. In the near term, the institutions agreed to develop methods to share greenhouse gas (GHG) emission data in connection with International Organization for Standardization (ISO) standards for information computer and telecommunications equipment, as well as baseline emission data for cyberinfrastructure and networks. Learn more at <http://green-broadband.blogspot.com>.

Conestoga acquires land for new Cambridge campus

Kitchener's Conestoga College recently acquired land from the City of Cambridge for a new campus. The groundbreaking will make way for a new School of Engineering Technology specializing in advanced technology programs related to: Robotics, Process Automation, Electronics, Communications, Engineering, and Information Technology. With over

200,000 square feet of applied learning and research space, Conestoga plans to have Phase 1 construction completed by 2011, creating capacity for 3,000 new students at the campus. A further 800,000 square feet of applied research and learning space is anticipated to be built in subsequent phases of development, adding capacity for another 11,000 students. Learn more at <http://blogs1.conestogac.on.ca/news/>.

YouTube comes to ORION

ORION-connected institutions can now access YouTube via ORION, via peering arrangements with Google. For more about peering and who ORION peers with, consult www.orion.on.ca/peering.html.

U of T astronomer involved in discovery of another solar system

A team of Canadian, U.S. and British astronomers have used telescopes atop the summit of a dormant Hawaiian volcano to capture images of three giant planets orbiting a star known as HR 8799, the first known images of another solar system. Comparisons of images obtained in different years show that the three planets, each roughly 10 times the mass of Jupiter, are all moving with and orbiting around the star, proving that they are associated with it and are part of a solar system. The research team, led by astronomer Christian Marois of the National Research Council Canada/Herzberg Institute of Astrophysics, used advanced instrumentation and image-processing techniques to detect the three faint planets against the bright glare of their host star. The images were captured by the high-resolution adaptive optics technology of the Gemini North and Keck telescopes at the Mauna Kea Observatories in Hawaii. Researchers say that in some ways, the HR 8799 planetary system seems to be a scaled-up version of our solar system, with more massive planets in orbit around a larger and brighter star. Read more at <http://www.news.utoronto>.

York joins TRIUMF

York University was recently welcomed as an associate member of TRIUMF, Canada's national laboratory for particle and nuclear physics. By joining TRIUMF, York will substantially enhance its access to advanced, large-scale research facilities and expertise in both the physical and life sciences. Through this agreement, York's scientists, especially physicists, will have the opportunity to lead and participate in large-scale research collaborations with their peers across the country. Since its inception as a local university facility, TRIUMF has evolved into a national laboratory while maintaining strong ties to the research programs of Canadian universities. The science program has expanded from nuclear physics to include particle physics, molecular and materials science, and nuclear medicine. Read more at <http://www.yorku.ca/>.

People News

ORION welcomes **Blair Brenot** as Technology Innovation Leader, joining the Partnerships & Strategic Alliances team. Former ORION Award winner, **Ron Baecker**, is the new interim director of the U of T's Knowledge Media Design Institute (KMDI). Former Greater Toronto Marketing Alliance (GTMA) president and COO **John Jung** recently became the CEO of Canada's Technology Triangle in Waterloo Region. University of Toronto professor **Alberto Leon-Garcia** recently became the new Academic Director of Bell University Labs (BUL). Mohawk College recently created a new Applied Research and Innovation department, of which professor **Ted Scott** will serve as acting director for the first year.