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IT TO THE NEXT LEVEL, SEE PAGE 8

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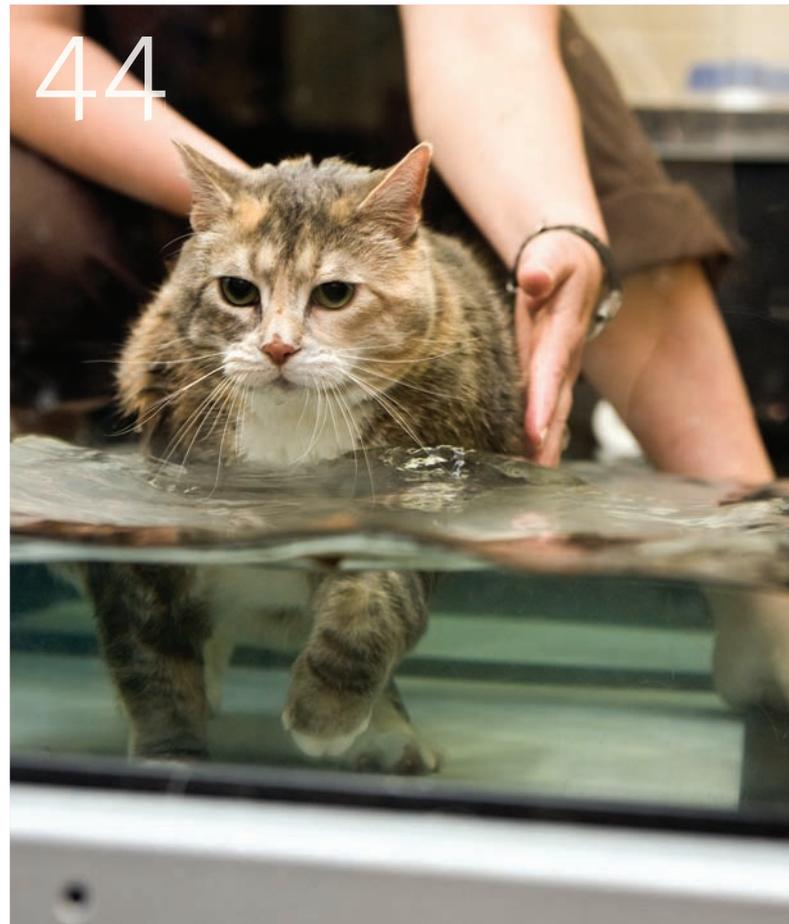
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NAOMI K. LEWIS

Naomi K. Lewis grew up in Ottawa and Toronto and went to school in New Brunswick. She recently ended a three-year stint in Edmonton and defected to Calgary, where she works as a ghostwriter, magazine editor and freelance journalist. Her first novel, *Cricket in a Fist*, was published this spring, and she's now working on her second. Lewis's favourite non-writing activity is eating, with cooking a close second, and after talking with the vivacious Daniele Costa – whom she found sitting in his restaurant, ordering cookbooks online during a break from the kitchen – she will never again over-boil linguine or take olive oil for granted.



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SCOTT MESSENGER

A recent road trip with Ben Bertrand and Mark Holtom gave Edmonton writer Scott Messenger some insight into the time-management techniques of the young and entrepreneurial. While heading to Barrhead to pitch their house-building technology to a manufactured home company, Bertrand tapped away at his laptop in the back seat while Holtom deftly divided attention between the road and his BlackBerry, all at speeds the writer has never before exceeded on land. Despite keeping a slightly slower pace, Messenger has managed to publish articles in newspapers and magazines across Canada and in the U.S., and is a frequent contributor to *Alberta Venture* and *unlimited* magazines.



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TAYLOR REESE

Taylor Reese is the kid who sat beside you in school, doodling in the margins. When he ran out of margins, the rest of the page was sacrificed. Since graduating from NAIT's Multimedia Technology program in 2001, he has taught software design courses, freelanced as a web and graphic designer and continues to doodle on every available surface. Currently on exhibit with NAIT's D3 Team, he agreed to some on-topic doodling for this issue of *techlife*. When he's not working, he can be found pursuing hobbies such as photography and bookmaking, or restoring his character home in Edmonton.



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LISA RICCIOTTI

On a professional level, Lisa Ricciotti has a reputation as an award-winning writer and editor, but away from her desk she's better known as "that crazy dog lady." After a 10-year stint as a contributing writer and managing editor for the Alberta and Manitoba editions of *Westworld* magazine, Ricciotti now writes for magazines such as *Avenue*, *Your Health* and *Dogs in Canada* from a home base shared with French bulldogs and Stoney, her arthritic nine-year-old English bulldog. Ricciotti relished the opportunity to combine her dual obsessions with dogs and words for her assignment on Sam Simpson's veterinary rehabilitation clinic. Ricciotti was so inspired by the clinic's results that she plans to sign Stoney up for water therapy – sporting a life jacket of course, since bulldogs can't swim.



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Alberta's trademark blue sky provides a fitting backdrop for the cover of this issue, featuring Ben Bertrand and Mark Holtom, whose company, Innovequity, is attempting to build a prototype of a machine that can spit out the walls, floors and roof of a building like a giant printer pushes out paper (On the Brink of Big, p. 21).

Unbelievable as it sounds, it's the result of Bertrand opening his mind wide to the possibilities and the potential of such technology, and coming up with what can only be described as a fantastic concept.

Throw in the advice and guidance of the experts at NAIT's Duncan McNeill Centre for Innovation and Prototype Development Program, and the concept moves that much closer to becoming a real solution to the rising labour and material costs facing the construction industry today.

This issue looks at plenty of other blue-sky thinkers – individuals who are passionate about their product or process, whether it's improving the quality of life for our pets, providing the less fortunate with access to something as basic as voice mail, or building a vehicle that costs pennies to operate. Inventor Jeremy Furzer turned a friend's fall on a frosty porch into a skate blade that has captured the attention – and investment – of none other than No. 99.

It appears that where great ideas are concerned – the sky's the limit.

We want to hear from you about this and past issues of the magazine as we strive to provide you with stories on technology for your life; send us your ideas.

And for those who want to read more *techlife*, don't forget to subscribe to the monthly e-newsletter at techlifemag.ca. In the meantime, enjoy the fall and the blue skies.



Sherri Krastel, Editor
editor@techlifemag.ca



"IT APPEARS THAT
WHERE GREAT IDEAS
ARE CONCERNED
– THE SKY'S THE LIMIT."

LETTERS

EMAIL EDITOR@TECHLIFEMAG.CA OR MAIL YOUR COMMENTS TO SHERRI KRASTEL, EDITOR, "TECHLIFE" MAGAZINE, 11762 – 106 ST. NW, EDMONTON, AB T5G 2R1

WE WANT TO HEAR FROM YOU.

I wanted to say how much your *techlife* publication impressed me. Wonderful fresh spin on NAIT and its future.

David R. Jones PhD
NAIT Computer Systems
Technology Instructor

I enjoyed the spring issue very much. One thought I had was that it seemed very arts-focused. I am not sure of the demographics of your readers, but I think women would have enjoyed this more.

I enjoy human interest stories, such as the article about the lady who attended the residential school and her work with

Breakfast for Learning (Heal the Past, Feed the Future, p. 42, Spring 2008). I know the magazine should focus on how our NAIT educations have made us successful in our chosen fields, but I think people would rather see more articles about how our educations have helped us have successful careers so that we can give back to society. You don't have to be the president of a company to make a big difference in society and I appreciate that you have recognized this and would like you to do it more.

Mark Grubisich
Marketing '87

When I see a message from *techlife* in my inbox, I immediately think it's spam promoting cheap computer software. The next thing that comes to mind is a technological journal or website. I certainly don't associate the name with NAIT. Luckily I opened the message this time, otherwise I wouldn't have known it was from my alma mater. I recommend that consideration be given to re-naming the online newsletter and any hard copy equivalent. Just trying to help the cause!

Grant Lovig
Marketing '74
President, Company's Coming
Publishing Limited

Editor's reply: *Choosing a name for a new alumni and friends magazine posed an interesting challenge. Following internal and external stakeholder consultations and a review of other publications, we selected techlife – a name proposed by one of our readers – which we felt captured the essence of the NAIT brand.*

We understand readers might not immediately associate techlife with NAIT, which is why we include NAIT in the subject line. To prevent techlife WebExtra from being marked as spam, add editor@techlifemag.ca to your safe list.



DR. W.A. (SAM) SHAW, PRESIDENT AND CEO

WANTED: INNOVATORS

Innovation is at the heart of every great society, from technological advances to medical breakthroughs to product and process improvements. Taking the germ of an idea and turning it into a product with real value has been challenging people for centuries. Like Alexander Graham Bell, who invented the telephone in 1876 at the age of 29 and never stopped inventing for the rest of his life, inventors have been driven by their passion and desire to keep learning and creating.

At NAIT, innovation means developing real solutions for business and industry. We've taken our track record of doing just that, and combined it with our passion for turning practical ideas into profitable ventures to create the novaNAIT Centre for Applied Research and Technology Transfer (High Def, p. 18).

This exciting initiative consolidates our expertise in applied research, prototyping, business enterprise and technology transfer. It puts us in a unique position to inspire the next generation of Alberta innovators while supporting business and industry in their drive to be

more competitive in the global economy, helping to create wealth and ultimately, improving the quality of our lives.

To celebrate, we came up with an idea of our own. We're giving *techlife* readers the chance to pitch their technology, product or business ideas to a panel of judges for the opportunity to win up to \$10,000 toward novaNAIT services, including prototype development (details at right).

It's all about supporting our vision to be globally valued for student success, applied research and innovation. Send me a note or drop me a line to let me know how we're doing and what you think of the future of applied research in improving Canada's productivity and innovation capacity.

Dr. W.A. (Sam) Shaw
President and CEO
sams@nait.ca

TAKE THE NOVANAIT CHALLENGE

Got an idea? Want to take it to the next level? Take the novaNAIT Technology Commercialization Challenge. Pitch us your technology, product or business idea. People with the best submissions will be invited to present their ideas to a panel of experts for a chance to win up to \$10,000 in novaNAIT services, which include prototyping, business development assistance and mentoring. Contest closes Nov. 21, 2008.

For details, visit
techlifemag.ca/novanait.htm.



FROM LEFT, NAIT'S SIX FULL-TIME COACHES: WOMEN'S VOLLEYBALL, KEITH LUNDGREN; MEN'S BASKETBALL, DON PHILLIPS; WOMEN'S BASKETBALL, CURTIS NELSON; WOMEN'S HOCKEY, DEANNA IWANICKA; MEN'S VOLLEYBALL, SIMON FEDUN; AND MEN'S HOCKEY, TERRY BALLARD.

ON THE OFFENSIVE

THE SIX NEW FULL-TIME COACHES ON NAIT'S ROSTER SEND A CLEAR MESSAGE: THE INSTITUTE IS OUT TO CONQUER CANADIAN COLLEGE ATHLETICS.

Linda Henderson, director of NAIT Athletics and Recreation, says the mission is simple. "We want to excel in our athletics program; to win national championships; to recruit the best student-athletes; to increase our profile within the community; and to make NAIT the institute of choice."

It's been an aggressive push. Earlier this year, NAIT became the only college-level school in the country to have not only full-time dedicated coaches, but six of them. Each coach has been assigned to one of the men's and women's volleyball, basketball and hockey teams.

The full-time coaches are employed year-round, while an additional six part-time coaches are responsible for seasonal sports such as soccer, curling and cross-country running.

Sandra Murray-MacDonell, executive director of the Canadian Colleges Athletic Association, says she's

impressed that the NAIT administration has supported hiring six full-time coaches. "Having full-time, qualified, experienced coaches is an asset for both the institution and the student-athlete. NAIT will be able to attract more student-athletes, and the full-time coaches will be able to provide them with the tools and the full attention they need to attain their highest performance level."

NAIT's intercollegiate teams have established a rich tradition of success. Every year during the period of the 'hockey supremacy' - 1974 to 1999 - the men's hockey team either qualified for or won the nationals. In 2003, the men's basketball team won the nationals. This year, NAIT's men and women triumphed in the singles competition of the national badminton championship.

With full-time reinforcements on board, Henderson believes even greater prospects lie ahead.

- DONOVAN FRANCIS

NAIT CALGARY RELOCATES

NAIT's Calgary office is moving into leased space in a new building in the city's northeast this fall, expanding the Institute's capacity to offer southern Albertans access to unique programming, from apprenticeship to degrees. These programs include Roofer, Lather - Interior Systems Mechanic, the Bachelor of Technology in Technology Management and the Bachelor of Business Administration in Enterprise Management. The last two are degrees offered by NAIT since fall 2007 and 2008, respectively, with a mixture of in-class and online components.

NAIT will also continue to offer customized training for business and industry in Calgary to companies such as Telus, and will utilize the new site as a springboard for corporate and international training to meet the needs of the many multinational corporations with operations in Calgary.

NAIT has had a presence in Calgary for a number of years, delivering unique apprenticeship programs and maintaining relationships with key partners whose head offices are in southern Alberta. The new office is significantly larger, with five offices, three classrooms, a computer lab, a shop and an instructors' lounge.

- DAN VANKEEKEN



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OPERATOR ASSISTANTS

DRIVEN BY A BELIEF THAT TECHNOLOGY SHOULD HELP EVERYONE REGARDLESS OF INCOME, JAMES GRAY AND RYAN DILWORTH CONNECT SOCIAL AGENCY CLIENTS WITH AFFORDABLE VOICE MAIL.

STORY BY
RAYNE KUNTZ
PHOTO BY
LEIGH FREY

On this Friday afternoon, the Bissell Centre is bustling. More than a hundred disadvantaged citizens are milling about the Edmonton inner city drop-in centre, seeking simple things like a cup of coffee, the use of a washroom or a place to sit down that isn't a curb. "No one wants to give these people a chance," says Ryan Dilworth.

Dilworth and fellow NAIT telecommunications grad James Gray are among the exceptions. The 20-somethings believe everyone has a right to be connected – even the homeless. And that's what drove them to develop Freemail, an affordable system that allows agencies such as the Bissell Centre to provide clients with their own private voice mailboxes. Messages are stored on a server until retrieved by users. "We have all this great technology – right? – but most of the time it is being used to further corporate endeavors; very seldom does it help individuals who cannot afford to pay for it," Dilworth says.

Freemail was Dilworth and Gray's final class project this past spring. Gray got the idea from an article he read about a similar system set up to help the homeless in San Francisco. While the tools to create the system were accessible online, there was no how-to guide. It took the two about 100 hours of reading, guessing and testing. "We used a whole bunch of different programs that are all open source, that are all free to the world, and we just knit them together," Dilworth says.

The Bissell Centre started using the system in June, with the goal of offering voice mail primarily to clients accessing employment and housing services. The social agency pays a small fee to cover some of

Dilworth and Gray's time setting up and administering the project. It's a fraction of what a regular telephone company would charge.

Ken Robertson was one of the Bissell Centre's first Freemail users. When he got his number, he had no fixed address and no phone. He jumped at the opportunity to have a private voice mailbox he could access anytime, from any phone "so people can contact me for employment." How often does he check it? "Every day."

It's that type of psychological boost that Becky McClelland, an employment support worker at the Bissell Centre, thinks Freemail could provide to the people she helps. "This might give them the oomph they need to take that step to get out of the rut. Just to hear something positive like, 'Here is a great job opportunity' or just 'Hi' from Mom. . . . It could be really encouraging."

Those are results Dilworth and Gray hope to hear about as more people use their service.

During a half-hour at the Bissell Centre, Gray splits his attention between this interview and his laptop; he's setting up Freemail for the Youth Emergency Shelter Society (YESS). "I will be done before this interview is," he says.

Dilworth and Gray say setting up Freemail is easy; it's finding the time to do it that's the real challenge. Despite that, they are committed to connecting as many people as they can – the Bissell Centre and YESS are just the beginning. ■

GETTING THE GOODS

STUDENTS DONATE CUSTOMIZED SOFTWARE TO HELP FOOD BANK IMPROVE SERVICE TO CLIENTS

STORY BY
RAYNE KUNTZ
PHOTO BY
JASON NESS

ST. ALBERT FOOD BANK, BY THE NUMBERS

4,183
NUMBER OF PEOPLE
FED IN 2007

2,148
NUMBER OF ADULTS

2,035
NUMBER OF CHILDREN

14.4
PERCENTAGE INCREASE
IN THE NUMBER OF
PEOPLE SERVED LAST
YEAR OVER 2006

177,445
POUNDS OF FOOD
HANDLED OUT TO
CLIENTS IN 2007

50
NUMBER OF
VOLUNTEERS



It's a typical Friday morning at the St. Albert Food Bank. There has been a steady stream of clients picking up hampers since the doors opened at 9 a.m.

"I need a fridge and a freezer please," food bank executive director Suzan Krecsy calls out to a room full of volunteers who are scurrying around unpacking donations and stocking shelves. Krecsy is asking for eggs, meat and butter to add to a hamper for a family she is meeting with privately, behind a sliding door.

"We saw a significant rise in demand over the last year," Krecsy says. "We served more than 4,000 clients, which is an increase of 371 from the previous year. In a normal year, we see an average increase of 100."

Krecsy loves the people part of her job; it's keeping track of the stats that's a chore. Her current software system is so limited she has to do many of the tasks manually. But the number crunching is about to get easier thanks to a customized software system created by NAIT Computer Systems Technology students. From keeping detailed client files to logging the food coming in and going out, the new system will allow Krecsy to compile meaningful data, ultimately helping her better serve those in need.

"We have got clients that are deceased and I can't delete them, so if I were to ever print out client numbers they would be skewed," Krecsy says.

Thirteen students spent their 16-week course working on three potential systems for the food bank. Ryan Corrigan, who graduated this past spring, admits it was a lesson in more than software development. "One of the most humbling things was that our software allows people to have better access to one of the things most vital to life," he says. "Our software is allowing people who are hungry and in need of food to get that food in an efficient way."

In the end, Krecsy liked portions of all three programs, so instructor Graham Miller is co-ordinating the building of a system that integrates the best of each. "All three groups did fantastic work," he says.

Krecsy knows she would never have been able to afford what the students and Miller are doing for free. "I would have billed about \$40,000 if I did this as a contract. A consulting company would probably have charged more," Miller says.

Krecsy puts the impact of the donation into perspective. "It's like our clients, they just need a push or a helping hand up and they are gone. It's like that with NAIT helping us now. This is going to give us the momentum."

Once the system is installed, NAIT's relationship with the food bank won't be over. Miller has hinted another class could work on a larger project to co-ordinate all the food banks in the province. ■

GADGETS

"TECHLIFE" ASKS, THE UBIQUITOUS IPOD AND BLACKBERRY ASIDE, WHAT GADGET COULDN'T YOU LIVE WITHOUT?

These items and more available at the NAIT Tech Store or online at www.nait.ca/onlinestore.

TIME CAPSULE

The Time Capsule from Apple is a very compact two-in-one product. **Jaspar Yip**, customer service representative at the NAIT Tech Store, finds this joint wireless router and external hard drive very useful.

"I have the 500GB model. I've configured my MacBook to back up my files to the Time Capsule every second day. It does this wirelessly of course, and I have wireless Internet too.

"It is very reassuring to know that I have a copy of my files, pictures and music in case something happens to my computer."

DRIINN

Debra Couwenberg, retail supervisor at the NAIT Tech Store, is caught up with the convenience of the Driinn. "It is more of an accessory for technical gadgets - a very cool accessory."

The Driinn is a small plastic holder capable of securing a cellphone, iPod or camera to a wall plug while the device is being charged. "Just use your power adapter to hold the Driinn against the wall, wrap the cord around it and place your electronic device on the shelf. Nice, neat, tidy."

LACIE HUB

Javier Salazar needed a hub with flexibility and the LaCie Hub, a central point for USB connections with five USB ports, three FireWire ports, a USB fan, a USB light and one USB and one FireWire extension cable, gave the NAIT Tech Store customer service rep what he wanted. "I can configure my hub to exactly what I need at any given time. Plus, it is really cool looking."

JAWBONE

"When I began commuting to NAIT, I realized I needed a Bluetooth headset for my cellphone so I could go hands-free while driving," says **Tunc Gunes**, a NAIT Tech Store customer service representative. Research online brought the Jawbone to his attention. "I've been using a Jawbone headset now for three months and there's no background noise when I make a call. I could even be at a concert and make a clear call. Amazing!"



←WHAT'S THAT UNDER YOUR HOOD?

It looks like a laptop but the HP 2533t Mobile Thin Client - used here by third-year Automotive Service Technician apprentices - connects wirelessly through a browser to an existing server, eliminating the need for anything more than minimal software or hardware. The lack of a hard drive and a fan makes it ideal for use in a dusty shop environment where technicians frequently access online service manuals. And with no data stored on the device, there is no risk of losing sensitive information if stolen or damaged. The unit weighs 1.36 kilograms and is 34 millimetres thick, making it easy to lug around. Ten out of approximately 75 units sent out worldwide for early evaluation by Hewlett-Packard were tested in various environments around NAIT, including two used in May in the automotive area.

INCLUDED

THIS ELECTRIC VEHICLE HITS A TOP SPEED OF 130 KM/H AND COSTS PENNIES A DAY TO OPERATE. MEET THE MAN BEHIND THE INVENTION.

BATTERIES



Nap Pepin purrs his low-slung electric one-seater to a stop at the Sherwood Park IGA – and like a magnet, draws a curious crowd. Even before lifting the bubble-topped canopy to step out, he’s rhyming off particulars in response to rapid-fire questions. Fuel economy? As low as 0.37 litres per 100 kilometres (or 628 miles per gallon). Top speed? 130 kilometres an hour. Range? Nearly 200 kilometres between charges. Heading inside for a bag of marshmallows, he hears the clincher: “Holy cow, I want one of those!”

It was not for the attention that Pepin, a project manager at ATCO Electric, put more than 300 hours of free time into building this zippy little three-wheeler; in fact, he hesitated to take the egg-shaped vehicle out in public at first, fearing that people might be unreceptive. Rather, he built it for the joy of learning all he could about the latest electric vehicle technology and with an eye to building an even better car next time. The thumbs-up, bravos and front-page coverage that came his way as soon as he dared venture beyond his own cul-de-sac have been icing on the cake.

“I never thought the attention would be so gratifying,” he muses, chuckling at how he’s soaking it all up. “I even got the slow clap once.” Pepin’s electric car is Canada’s first to be built from a BugE kit.

Imported from Oregon’s Blue Sky Design (piece by piece to meet federal regulations prohibiting kit cars), Pepin’s BugE is so enhanced it’s hardly the same beast. There’s a touch of reverence as he lifts the canopy to reveal the battery management system with its two dozen lithium iron phosphate batteries and associated electronics, all fine-tuned to maximize output and display crucial data. “Not too many people have seen these batteries – it’s a real privilege,” he says, only half in jest.

Dubbed the lithium BugE in honour of those superior batteries, the vehicle far outstrips the typical BugE, with four times the range and a top speed nearly 50 kilometres per hour faster. With a fuel economy nine times better than the Toyota Prius, one of the most fuel efficient vehicles on the market, it costs only a half penny per kilometre to drive. To achieve those stats, Pepin kept everything light, bringing the BugE in at just under 180 kilograms. “I wanted everything I could get in an electric vehicle, but in a small package,” Pepin says. “It achieved everything – and more.”



STORY BY
CHERYL MAHAFFY
PHOTOS BY
JASON NESS

WEB EXTRA
See the BugE in action.
techlifemag.ca/electriccar.htm

"A LITHIUM-POWERED ELECTRIC VEHICLE – WHAT'S NOT TO LOVE?"

– AMANDA BUCKIEWICZ, DISCOVERY CHANNEL

Mind you, the first test drives in mid-May tried Pepin's nerves with flat tires, an electrical fire and other startup glitches. But all's well now, Pepin says.

Registered as a motorcycle, the BugE is a responsive little thing. Throttle up using the right handlebar and it reaches top cul-de-sac speed in mere seconds; throttle back and regenerative braking kicks in, recovering energy while helping to decelerate. Cornering feels potentially tipsy, but with all those batteries down low, the BugE isn't likely to roll, Pepin says. Potholes do pose a threat, however, given the near lack of suspension.

The vehicle has its naysayers, as Pepin discovered upon posting its specifications on an electric vehicle forum. One guy scoffed at spending "\$15,000 on the equivalent of a souped-up moped." Another questioned how much use a "partially enclosed, single-seat tricycle" would get during a Canadian winter.

Others are intrigued. A front-page story in the Edmonton Journal led to calls from the likes of CHUM TV, the Sherwood Park News, Breakfast TV, Access TV and the Discovery Channel. "A lithium-powered electric vehicle – what's not to love?" says Discovery Channel associate producer Amanda Buckiewicz,

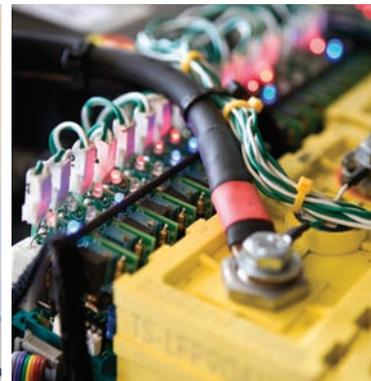
who has earmarked Pepin for a fall special on "Alberta's best and brightest."

The Reynolds-Alberta Museum in Wetaskiwin wants the car to join its collection of heritage vehicles. And Edmonton's Resurrection Auto is interested in partnering with Pepin on future projects. "Electrics are the future," says owner Ed Klapstein. "I've been planning an electric project, but my expertise is everything but electronics. He doesn't have a shop facility, so it should be a win-win."

The limelight may be new, but Pepin's passion for building is lifelong. A childhood peppered with go-karts, all-terrain vehicles and electronic creations led Pepin to NAIT's Electronic Engineering Technology program.

After graduating in 1985, Pepin carried his inventive eye into the workplace, becoming the go-to guy for custom designs. Freelance projects also came his way: one-of-a-kind science centre displays, oilfield demonstrations, even a sewer overflow model for the City of Edmonton that dramatizes the impact of a downpour with clouds, rain, thunder and lightning.

All that creativity slammed to a halt five years ago when Pepin was hit by a car while cycling and sustained a severe concussion.

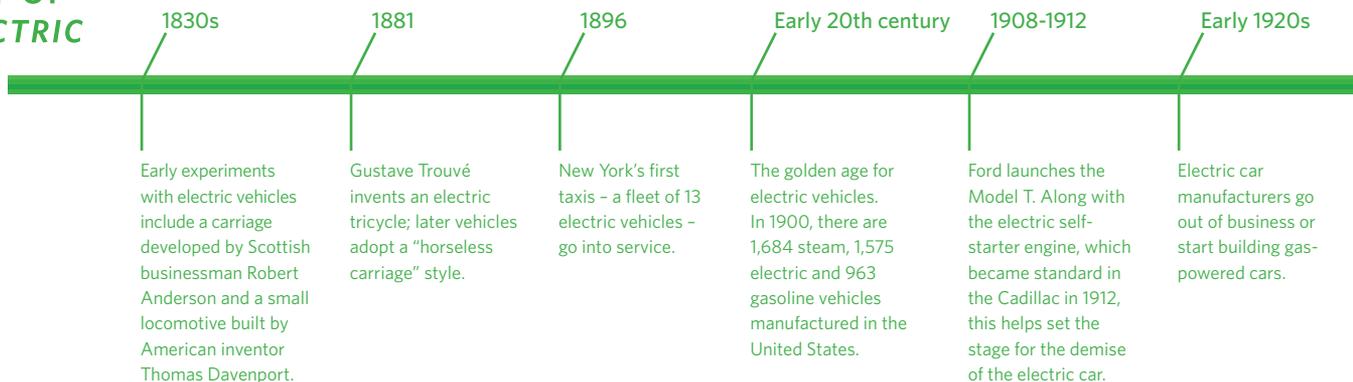


PEPIN IMPORTED THE BugE KIT FROM BLUE SKY DESIGN IN OREGON, BUT MADE SO MANY MODIFICATIONS, INCLUDING ADDING LITHIUM IRON PHOSPHATE BATTERIES (ABOVE RIGHT), THAT IT GETS FOUR TIMES THE RANGE OF A TYPICAL BugE BEFORE IT NEEDS TO BE CHARGED (ABOVE LEFT).

WE TEND TO FORGET THAT ELECTRIC CARS OUTNUMBERED GAS IN THE EARLY DAYS OF THE AUTOMOBILE.

– MARVIN GARTON, ATCO ELECTRIC

HISTORY OF THE ELECTRIC CAR





by major manufacturers and auto dealers, says Howard Hutt, president of the Electric Vehicle Society of Canada. Besides addressing the escalating financial and environmental costs of conventional fuels, he adds, “the very neat idea of plugging in at home is also a motive.”

We tend to forget that electric cars outnumbered gas in the early days of the automobile, says Marvin Garton, superintendent of technology services with ATCO Electric. The rise of the internal combustion engine soon left electrics in the dust, but advancing technology is promising to put them back in the running. “We’ll need to extract the right distance at the right price from these batteries,” he says, “and that’s something Nap has excelled in.”

The next car in Pepin’s electric quest is already taking shape. It’ll be a fully enclosed one-seater he can safely drive to work three seasons of the year for pennies a day – or even for free. Having purchased an ATV frame with an eye to incorporating its robust front suspension and steering column, Pepin’s on the prowl for \$50,000 in sponsorship – and access to the next generation of lithium batteries.

“I want to build a pure electric supercar that blows away the competition,” he says. He’ll do it for the love of the build – and maybe some attention as well. ■

Searching for a way to rev up a brain turned suddenly sluggish, he invented an arcade game that features laser beams, bombs and a Chinook helicopter. “It was way more complex than an electric vehicle, and I never have finished it,” he says. “But it did get my head going again.”

That is clear from the ingenious yet low-cost conveniences Pepin has built into the home he shares with his wife, Leslie, including a reverse osmosis system that purifies water using aquarium supplies and a radio frequency remote control that queues songs at lightning speed.

Success in these projects, coupled with significant advances in battery technology, told Pepin it was time to tackle his dream of building an electric vehicle.

Pepin is one of a small but significant number of people who are putting electric vehicles on the road despite foot-dragging

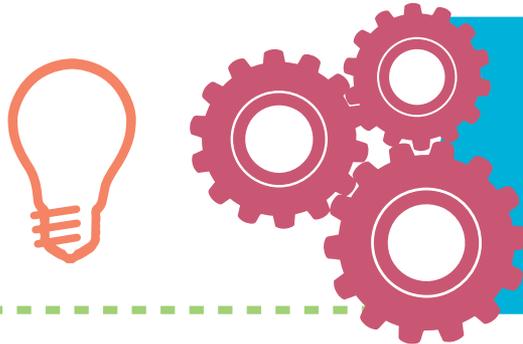


MY GREAT IDEA

STORY BY
DONOVAN FRANCIS

ILLUSTRATION BY
TAYLOR REESE

THESE INVENTORS AND ENTREPRENEURS HAVE TURNED TO NOVANAIT TO MOVE THEIR PRODUCTS AND COMPANIES TO THE NEXT LEVEL.



novaNAIT

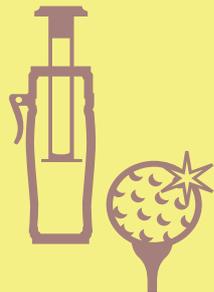


A self-contained, fluid-bearing device resembling a coffee mug, the **PORTABLE GOLF BALL WASHER** allows a golfer to clean golf balls with a few pumps of a vertically-protruding pumping handle.

Inventor
Joe Danyluk, retired teacher and practicing psychologist

Inspiration
“I was on a course when I saw a fellow golfer try to clean his ball with saliva and a cloth because there was no usable conventional golf ball washer available,” Danyluk says.

Status
Prototype complete, Danyluk is now looking for a company to manufacture and market it.



The **SCREAMIREN** is an audible warning system for fire trucks, police vehicles and ambulances that uses a mix of standard and lower tones. The use of the lower tone is based on the theory you always hear the bass from a car that’s blaring music before you see it. There’s also a residential tone for neighbourhood use. The tones were designed with SAE-J1849 (Society of Automotive Engineering) standards in mind.

Inventor
Trevor Werstiuk (completed NAIT’s Emergency Medical Responder course)

Inspiration
“I read a news story that raised questions about the use of emergency vehicle sirens in residential areas,” Werstiuk says. “It inspired me to design a system of tones that includes the ‘echo,’ a tone that is far less jarring – especially at night – than conventional sirens.”

Status
Prototype complete, Werstiuk is developing a business plan for a company to sell the Screamiren. He’s also working to get the support of emergency services organizations.



KEYSTONE 3D TECHNICAL SERVICES LTD. helps clients turn their ideas and products into reality via 3-D modelling software and rapid prototyping. The company also offers project management services, helping inventors take their ideas to production or market.

Entrepreneur
Pete Van’t Hoff, a grad of NAIT’s Engineering Design and Drafting program



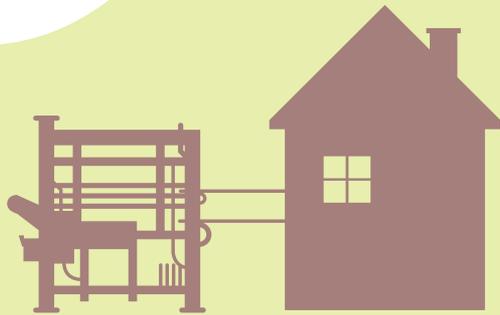
Company development
Looking for new challenges and realizing there was an opportunity to build a company that offered 3-D modelling services, Van’t Hoff decided to strike out on his own. Since arriving at the Duncan McNeill Centre for Innovation in January, he’s hired two employees and has grown his clientele base.

HIGH def novaNAIT | ˈnōvə - ˈnāt | noun

THE NOVANAIT CENTRE FOR APPLIED RESEARCH AND TECHNOLOGY TRANSFER IS A NEWLY CREATED SERVICE ARM OF NAIT THAT HELPS INVENTORS AND ENTREPRENEURS TAKE THEIR IDEAS TO MARKET.

TAKE THE \$10,000 NOVANAIT CHALLENGE, P. 8.

NovaNAIT builds on services previously available through the NAIT Department of Research and Development including business acceleration at the Duncan McNeill Centre for Innovation, applied research, prototype development and manufacturing solutions at the NAIT Shell Manufacturing Centre. New novaNAIT services include intellectual property management, assistance with patent applications



The **GEOMETRIC CONSTRUCTION UNIT** automates 70 per cent of home construction. The machine builds and extrudes the floors, walls and roof of a building, complete with wiring, plumbing, insulation and finishing coverings.

Inventor
Ben Bertrand, founder and CTO of Innovequity

Inspiration
Trying to co-ordinate tradespeople during the renovation of a 12-suite apartment building led Bertrand to look for a better way.

Status
Innovequity has been conditionally approved for a \$600,000 government grant to build a prototype.

Read about Bertrand and Innovequity CEO Mark Holtom's quest to revolutionize home construction (On the Brink of Big, p. 21).



The **ROLLATOR WHEELCHAIR HYBRID** is a motorizing kit that can be attached to a variety of four-wheeled mobility walkers (rollators), enabling people to use their rollator for walking and to convert it to an electric wheelchair when they need a break.

Inventor
Gary Kurek, a Grade 11 student. Kurek showcased an earlier version of his project during a science competition at NAIT.

Inspiration
Kurek decided to invent a mobility aid after watching his grandmother grow weaker as a result of cancer.

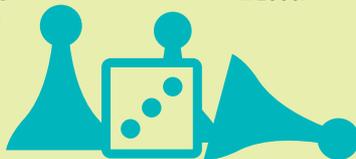
Status
Design and construction of the final prototype is underway at NAIT and should be complete this fall.



Bingo-type board games for health-care providers, **TERMS and DRUGS** are edutainment tools that review medical terminology and drug dosages, respectively. **FIRST AID CHALLENGE** and **CHILD CARE CHALLENGE** are prototypes of awareness games for first aiders and babysitters.

Inventor
NAIT paramedic grad Joe DeWitte is the founder and president of EMS Edutainment Inc. Her first board game, EMS Challenge, went into production in 2006.

Status
Terms and Drugs are now on sale. DeWitte hopes to license First Aid Challenge and Child Care Challenge to a manufacturer or buyer.



and licensing, regulatory approvals, technology evaluation and marketing, manufacturability assessment and access to accredited investors. NovaNAIT's services are available both to NAIT employees and the community at large.

"A key element in improving Canada's productivity and innovation capacity, applied research is the application of new or existing

knowledge to solve real-world challenges," says Dr. Ben Silverberg, associate vice-president of Research and Innovation.

Over the next four years, NAIT anticipates creating four applied research chairs funded by its partners. These researchers will be housed at the St. Albert Campus, which will be renovated early next year to provide additional research labs for novaNAIT.

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DESPITE SETBACKS AND STRUGGLES, INVENTOR BEN BERTRAND AND PARTNER MARK HOLTOM REMAIN FOCUSED ON COMMERCIALIZING THEIR AUTOMATED HOMEBUILDING MACHINE

ON THE BRINK OF BIG

STORY BY
SCOTT MESSENGER
PHOTOS BY
LEIGH FREY



MARK HOLTOM (LEFT) AND BEN BERTRAND TOUR THE WINALTA HOMES PRODUCTION FACILITY WITH PLANT MANAGER JOHN BUSBY (CENTRE). WINALTA IS THEIR INDUSTRY PARTNER FOR A \$600,000 GRANT APPLICATION.

OPPOSITE PAGE:
ALWAYS WORKING.

In 2000, nine per cent of small and medium enterprises were owned by entrepreneurs between the ages of 25 and 34.

- INDUSTRY CANADA

In a cavernous factory in Barrhead, the air filled with the scent of sawdust and the spastic rhythm of air-nailers, Ben Bertrand and Mark Holtom look like they've lost their way to the boardroom. Holtom's in ivory long-sleeves and brown slacks, both accented with pinstripes, exaggerating his tall, thin physique. His short brown hair meets in a subtle peak reaching front to back. Bertrand, in a striped blue and white shirt, wears a black suit, jacket closed by one button, making him, with his reddish mop-top and smattering of freckles, vaguely Beatle-esque. Both wear expensive-looking leather shoes. Everyone else here – a construction crew of about 250 – sports steel toes.

Blame youth – Bertrand's 25 years old, Holtom, 27 – for their incongruous fashion sense. But also contributing is a drive to create an impression of professionalism and confidence around their company, Innovequity, and their product, the Geometric Construction Unit (GCU), which they predict will make conventional building methods look about as modern as a barn-raising. Once – that is – it actually exists. This trip isn't so much a sales pitch as it is a subtle appeal for funding badly needed to build a prototype of the GCU, which will automatically build and extrude the floors, walls and roof of a building – complete with wires, plumbing, insulation and finishing coverings. Luckily,

Alex Arrieta, engineering manager here at BarrCana Homes, seems ready to buy in. Mostly.

He stands with them at the end of the 160,000-square-foot facility where as many as 24 units a week start as platforms before receiving walls, roofs and all the homey insides prior to being trucked away. "This is where your machine would go," Arrieta tells them, indicating a production line devoted to the apartments and townhouses BarrCana assembles from identical, Lego-like units. With respect to customized single-family homes, however, he questions the GCU's capabilities.

"If we have a change in the production line, your machine will have to adapt," he says.

"That's exactly what our machine is designed to do," Bertrand reassures.

To be an early adopter, BarrCana needs Innovequity to tailor their technology to fit the company's needs. In short, Arrieta's looking for a compromise.

Bertrand, Innovequity's founder, chief technology officer and inventor of the GCU, and Holtom, the company's CEO, once would not even have considered factory-built construction as a market for their machine. When they first tried to commercialize their technology, the market they were after was the on-site construction of single family homes. The idea seemed unassailably saleable, drastically reducing the labour, time, danger,

waste, and, most importantly, cost of conventional construction. Back then, Bertrand measured potential revenue in billions.

Of course, that was three years ago, before costly patent applications, botched negotiations with investors, and plain inexperience forced them to reassess the future according to their dwindling bank accounts. "We've gone from taking over the world," Holtom will tell you, "to, 'Maybe we should take over northern Alberta.'" And, given some number-crunching Bertrand's doing while touring BarrCana, he'd agree. He estimates current annual production to be over a million square feet. Produce that using the GCU, with royalties of a few dollars per square foot payable to Innovequity, and the answer suggests that the time has come to shift focus. Still, says Bertrand, "I don't think there's any delusion on our part. There was early on, but now we're beyond that. All this struggle," he adds, "will make success taste sweeter for sure."

Bertrand doesn't dwell on mistakes. He does, however, freely admit to them.

"Founderitis, that's what I had," he says. "Founderitis is when someone creates an idea, a business model, and they get very high on themselves because of it. Creating something that has potential is not something everyone can do, and it is something to be proud of. But if you have founderitis, you take it to the extreme: you're smarter than everyone else, you deserve to own 90 per cent of the company forever, and it's your way or the highway. It's a sickness – not in the literal sense, but it will harm you greatly."

Bertrand's susceptibility to this "sickness" may have started eight years ago, when he hired on with a local real estate management and renovation business. By 18, he felt he'd done enough hands-on work to purchase a duplex. After renovating the basement himself, he flipped it one year later for an \$80,000 profit. He did it again with a Park Allen six-plex, this time making \$200,000.

"After that I had all the confidence in the world," says Bertrand, "so I bought a 12-suite apartment building." He soon realized he was in over his head. Renovating the building and adding a third storey went from what was expected to be a six-month project to a year-long struggle to co-ordinate the tradespeople required to get the apartment back into money-making condition. Desperate for a better way, Bertrand disappeared into his basement suite at his Grandma's house, spending the next year bringing the GCU to life in the form of computer-animated renderings.

"I've always had a technical mind," says Bertrand, who has no formal post-secondary education. "I like the function of things. If you look at the machine it's not that complicated; it's just a matter of fastening materials together."

But even after joining forces with Holtom about two and a half years ago – following a meeting arranged

through friends of friends and convincing the computer company owner to quit the world of databases and desktop support – Innovequity flourished.

"It was a year and a half at least of extreme difficulty," says Bertrand. Without a prototype and experienced management, investors proved wary. "That was our education," he adds. "We learned the hard way. I was – I won't say arrogant – but too confident."

A fine line separates the two. Two summers ago, Bertrand and Holtom discussed their technology with Don Oborowsky, president and CEO of Waiward Steel, one of North America's most automated steel fabricators. When the industry veteran suggested the GCU's most immediate potential lay in no-frills work-camp construction, Bertrand refused, discontented, thinking the market too limited compared to residential construction.

"If you put \$10 million into this you could be building high-rises right away," he recalls thinking. "But at the time Oborowsky wanted to start small. And he was right."

Randy Thompson, CEO of the Venture Alberta Forum, which unites select start-ups like Innovequity with investors, has seen Bertrand's attitude before. "One of the things we teach," he says, "is: Do you want to be rich or do you want to be king?" To be rich – and quickly build a solid company – Thompson says forfeiting some control is essential. "If you grow it properly and you're sitting with 20 per cent of a \$20-million company, well, that's better than 100 per cent of a \$1-million company."

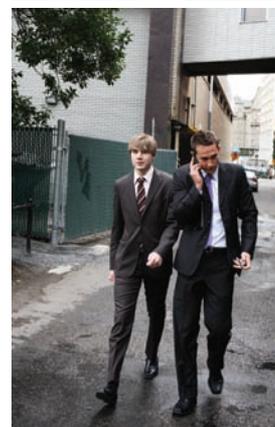
But to get there, he says, you also need established, deep-pocketed customers like Oborowsky. With a chance to right past wrongs, Bertrand would have entered that meeting more open-mindedly. "We'd be years further along if we had," he says. "It hurts."

"But then we would have been two years less experienced moving into the stage we're at now," says Holtom, offering the positive spin as the guy responsible, as he puts it, "for shaking hands and kissing babies."

Innovequity attributes much of that experience to the support they've received from staff at NAIT's Prototype Development Program and Duncan McNeill Centre for Innovation, where they've had an office since summer 2007. That guidance has helped bring the project to where it currently stands: Bertrand and Holtom guess that within nine months, Innovequity will finally start generating its own revenue, rather than being sustained by the pair's occasional real estate dealings and investor financing.

"Having the NAIT name attached to us gives us credibility," says Holtom, who doesn't soon foresee himself and Bertrand vacating the centre. "It offers a sense of comfort to everyone who deals with us."

Moreover, that relationship has given them access, through the Prototype Development Program, to government funding to cover half of the \$200,000 price tag for mechanical drawings of the GCU, as well as to



"DO YOU WANT TO BE RICH OR DO YOU WANT TO BE KING?"

– RANDY THOMPSON
VENTUREALBERTA
FORUM



Small businesses spend far less on R&D than larger firms, but as a percentage of their revenue, they spend more.

- STATISTICS CANADA

SHAWN BROWN (LEFT) AND WARREN BERGEN (RIGHT) OF WEBBCO INTERNATIONAL, A REAL ESTATE DEVELOPMENT AND VENTURE CAPITAL CORPORATION, ARE RESPONSIBLE FOR CONNECTING BEN BERTRAND AND MARK HOLTOM (CENTRE) TO NAIT'S PROTOTYPING SERVICES.

the engineers who produced the drawings, and to the NAIT Shell Manufacturing Centre, where the first few pieces of their prototype were cut. The full prototype, which will cost \$550,000, will be outsourced to Option Industries for fabrication later this year.

David Burry, co-ordinator of NAIT's Prototype Development Program, serves as an advisor to Innovequity, helping Bertrand and Holtom with budgeting, making the industry and government contacts needed for prototype development, and, ultimately, with achieving sustainability - sooner rather than later.

Funding aside, he says, "With Innovequity, it's just a matter of taking what's finished on paper and making it. And given the hours already spent on the project, I'm very confident that, out of the box, it's going to be an impressive machine."

But there's more to it than drawings, says Burry. "Successful entrepreneurs take the risk and decide to try

to grow what it is they have a passion for. That's the key: the passion." In Bertrand and Holtom, who represent the biggest project he's managed to date, Burry sees that manifesting almost to an extreme. In short, he says, "That's their life."

"There have been many times when I wished that I hadn't come up with this idea and just focused on my real estate business," says Bertrand. Not only is he certain he'd already be a multimillionaire, but he wouldn't have invented something that has become nothing short of an obsession. But, "This is how the world progresses," says Bertrand, "by people who are obsessed by something like this."

His drive is obvious. At BarrCana, he asks every manager he meets if he's seen the Innovequity DVD presentation sent a few months earlier, pressing even president and CEO John Bennett. While Bennett admits he hasn't yet seen the DVD, he says he plans to. "Presentations and videos are one thing," he adds,



“but when can we start working on this and planning for the future?” For him, automation means new markets and increasing production capacity – a necessity for keeping up with local competitors like Winalta, which has also expressed keen interest in the GCU.

Back at Waiward Steel, Oborowsky swears by such innovations. “I’ve had a mindset all my life that there’s always a better, faster way to do absolutely anything,” says the 59-year-old, and that’s something needed by the homebuilding industry, where “the most advanced technology introduced over the last 50 years,” he chides, “is the cordless drill.” In other words, homebuilders may need Innovequity as much as Innovequity needs them. That, he says, makes the GCU the billion-dollar idea Bertrand has always believed it to be – for Innovequity and whoever partners with them. “If I was 15 years younger, I’d be that guy,” says Oborowsky, a grad of NAIT’s Carpentry program and member of the Institute’s Board of Governors.

“I would start building houses like nobody has ever seen before.”

Returning to Edmonton, Holtom sits behind the wheel of the BMW sedan he borrowed from his uncle, a car he claims he couldn’t currently hope to afford. Bertrand’s in the back seat, seeming energized and excited. Perhaps he’s still crunching numbers. Perhaps he has decided that the numbers are beyond him, that the future is unquantifiable, limitless. And though he won’t relinquish his dream of seeing Innovequity technology build high-rises, he seems satisfied with the idea that getting there means starting somewhat small. He looks out the window as they pass Winalta, its yard filled with finished mobile homes. Minutes up the road, they pass another, slightly smaller facility.

“How come technology like ours hasn’t been invented yet?” Bertrand asks. Then, in a tone of obvious, even if mild, contentment he adds, “There are hundreds of these factories across Western Canada.” ■

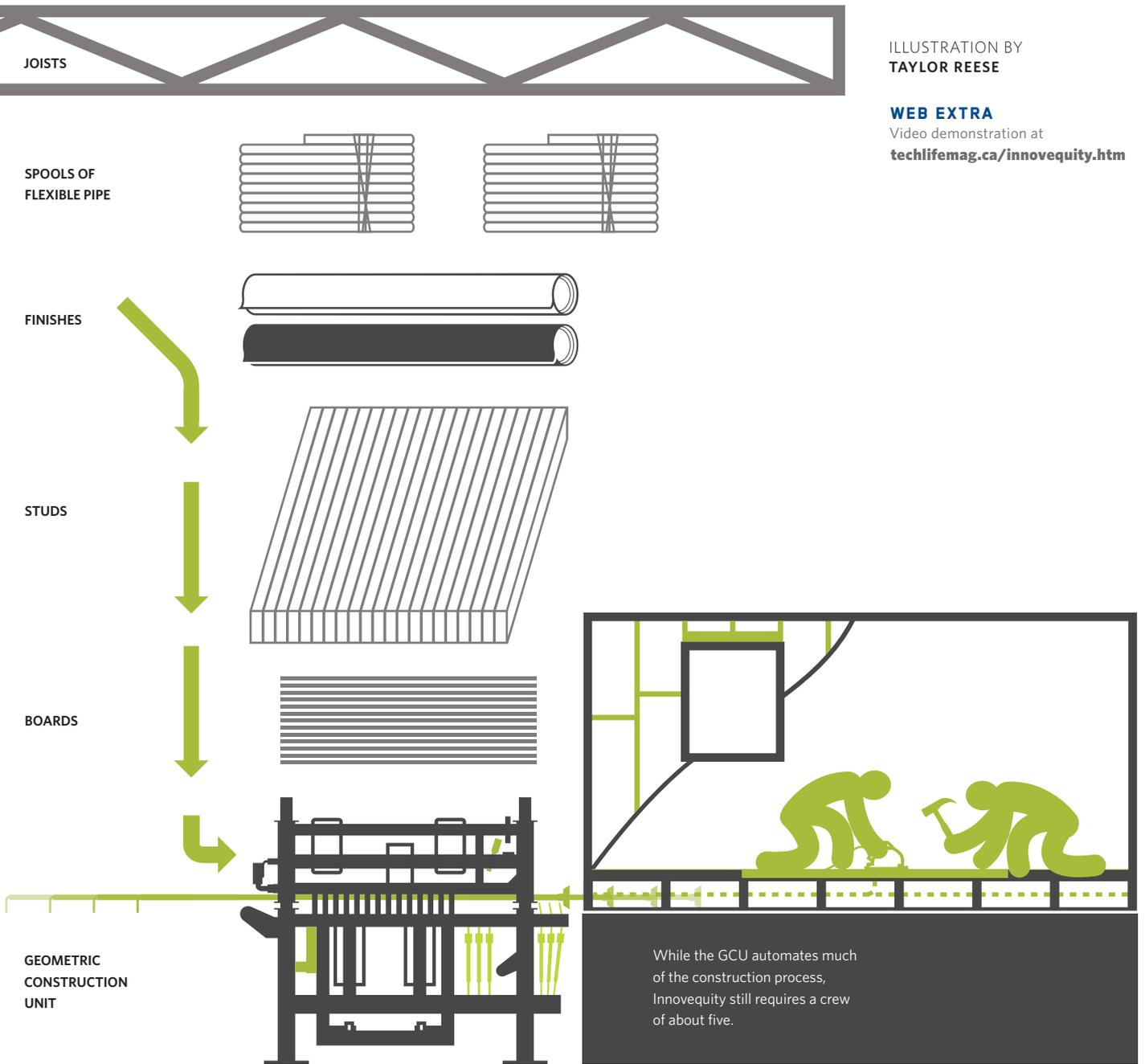
Editor’s note:

On Sept. 8, 2008, Innovequity was conditionally approved for a \$600,000 government grant to build a prototype of the Geometric Construction Unit. “It’s definitely the best thing that’s ever happened to the company,” Bertrand says.

ILLUSTRATION BY
TAYLOR REESE

WEB EXTRA

Video demonstration at
techlifemag.ca/innovequity.htm



Approximately 20 feet long and eight feet wide, the Geometric Construction Unit (GCU) vaguely resembles a giant printer.

The GCU is loaded with conventional building materials, including pre-made joists and oriented strand board, as well as wires and tubes for electrical, plumbing, heating, cooling and data communications.



Once the GCU automatically fastens the first board to the top and bottom of the leading joist, a winch slowly pulls the new floor, complete with necessary wiring, tubes and insulation, across the foundation. The GCU continues to nail board to joist according to measurements programmed into the machine.

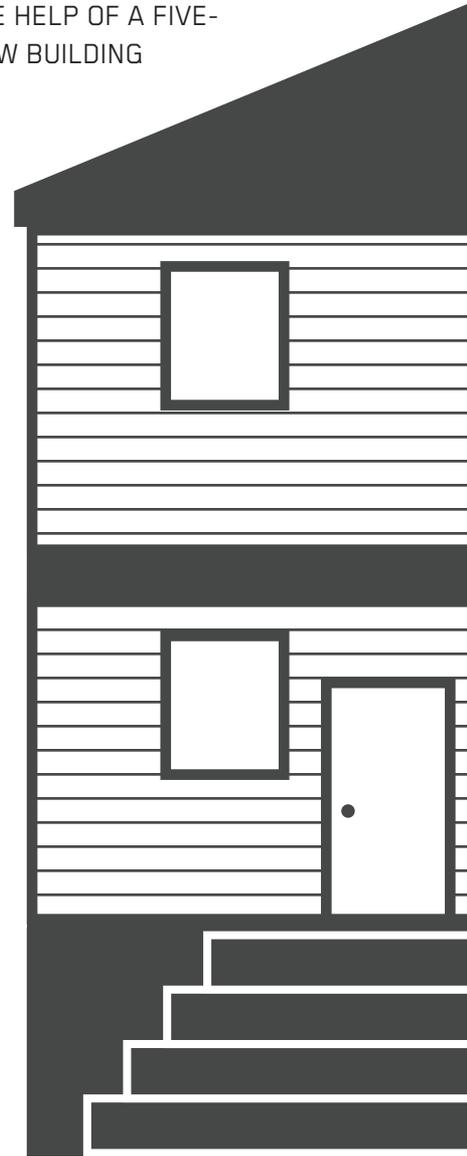
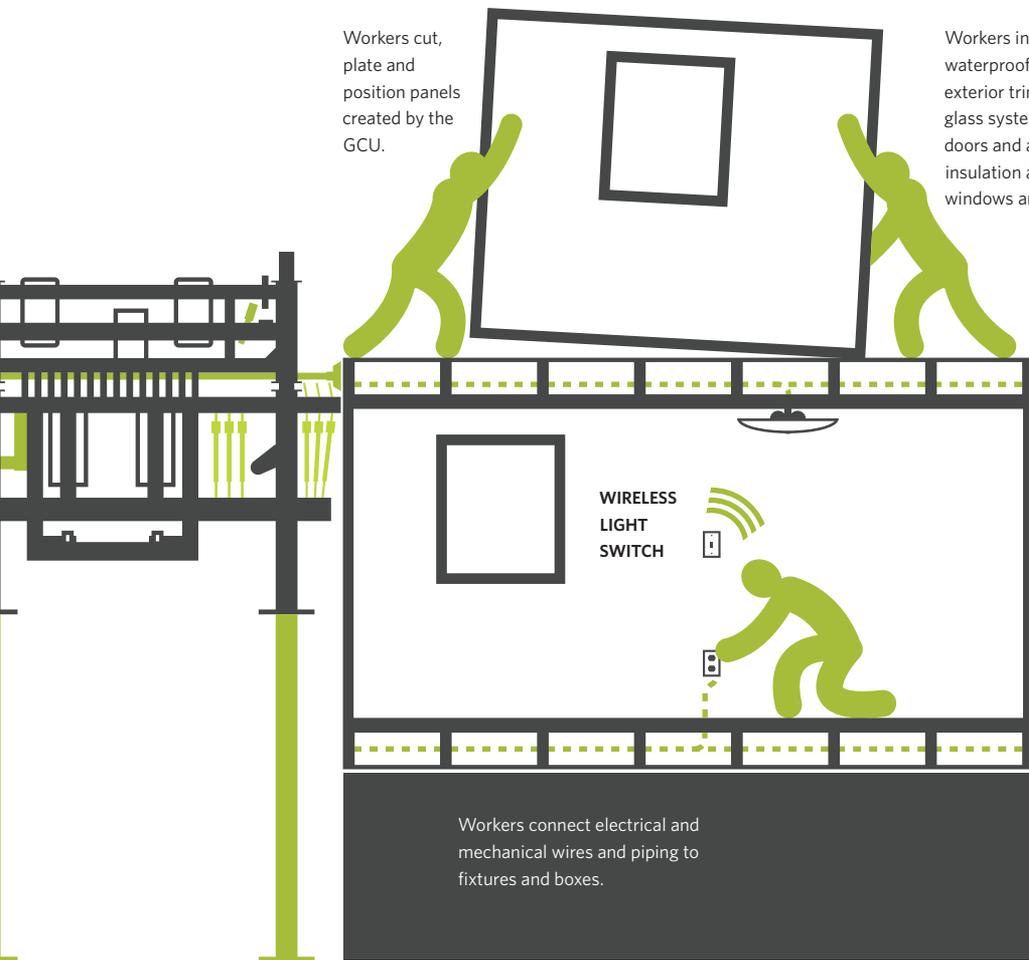


The GCU elevates itself and, substituting studs for joists, produces walls complete with window cutouts, directly on top of the floor. The technology can also apply exterior wall finishes, as well as interior wall finishes, ceiling finishes and vapour barriers.

Workers manually remove the exterior finish for the windows.

IT'S ALL IN A DAY'S WORK

DESPERATE FOR A BETTER WAY TO BUILD A HOUSE, BEN BERTRAND INVENTED A MACHINE THAT HE BELIEVES CAN PUT UP MOST OF A 1,200-SQUARE-FOOT HOME ON SITE IN ONE DAY WITH THE HELP OF A FIVE-PERSON CREW. TWELVE HOURS AFTER THE MACHINE HAS BEEN LOADED WITH RAW BUILDING MATERIALS, ALL THAT REMAINS ARE THE FINISHING TOUCHES.



Floor panels have the structure's blueprint marked on them, as well as all cutouts for fixtures on the walls, floors and ceilings.

The GCU automates the construction process, but it doesn't preclude custom design. The GCU is able to build multi-storey homes of various designs; even high-rises are possible.



With its automated technology, Innovequity believes it can build 70 per cent of a home in one day, with a crew of five, saving roughly \$35 per square foot compared to conventional construction methods.

Additional contractors would be required to complete the rest of the finishing work, which includes installing the floor finish, interior trim, cabinets, fixtures, interior doors and appliances.

DO YOU FIT THE PROFILE?

NAIT BUSINESS INSTRUCTOR JAY KRYSLER ON THE PERSONALITY TRAITS OF AN ENTREPRENEUR

Defining the characteristics of an entrepreneur is not an easy undertaking as the skills and attitudes considered desirable can change over time and can be influenced by the entrepreneur's particular environment. One of the best summaries, however, comes from the work of the late Jeffry Timmons, professor of entrepreneurship at Babson College and author of more than 20 books and 100 articles or papers, including the groundbreaking book *The Entrepreneurial Mind*.

Timmons identified six themes of attitudes and behaviours found in many entrepreneurs.

Committed and determined - Entrepreneurs are prepared to make sacrifices to follow their dreams and can be most persistent in solving problems.

Leadership - Entrepreneurs are self-starters, but are not lone wolves and are adept at team-building.

Tolerant of risk, ambiguity and uncertainty - Not exceptionally high risk-takers, entrepreneurs are defined more properly as calculated risk-takers. They can manage contradictions in uncertain situations and can tolerate stress and conflict.

Creative, self-reliant and adaptable - Many entrepreneurs are good lateral thinkers, quick learners and don't fear failure.

Opportunity obsessed - Entrepreneurs are focused on creating and enhancing value in their marketplaces.

Motivated to excel - Entrepreneurs have realistic perspectives about themselves and are aware of their weaknesses and strengths. With this, they are driven to achieve and grow. They are goal- and results-oriented.

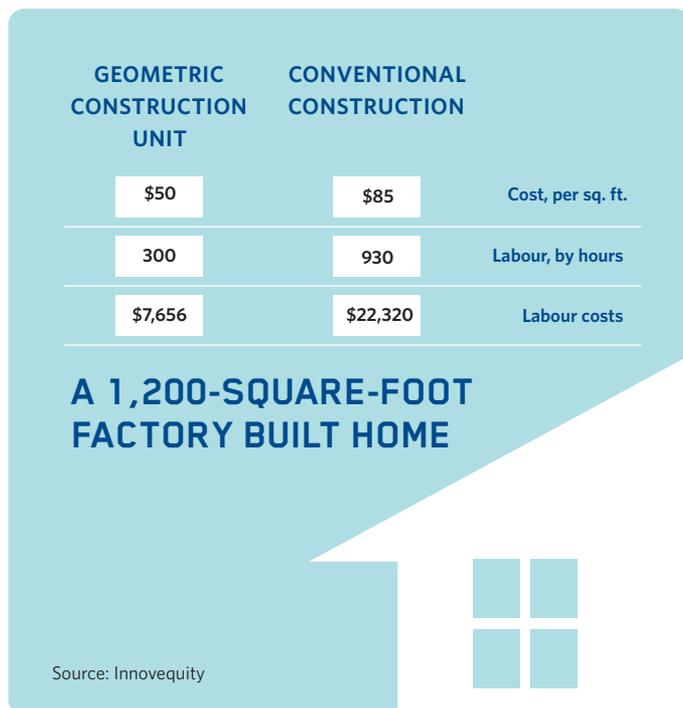
WEB EXTRA

Find out if you have what it takes to start a business.

techlifemag.ca/quizzes.htm

NOW AND WHEN

INNOVEQUITY'S AUTOMATED HOME CONSTRUCTION TECHNOLOGY PROMISES SAVINGS OF TIME AND MONEY - A PROMISE HABITAT FOR HUMANITY HOPES WILL HELP MORE FAMILIES GET OUT OF THE MONTHLY 'DO I PAY THE RENT OR DO I BUY GROCERIES?' PREDICAMENT.



Building a 1,200-square-foot house in a factory using conventional construction methods takes 930 hours, according to Ben Bertrand and Mark Holtom's industry research. They believe they can significantly reduce that time. By automating the process with Innovequity's Geometric Construction Unit (GCU), a floor for a similar structure - complete with the necessary utilities and finishing coverings - would take approximately 30 minutes. Add roughly three more hours for four walls and a roof, one to load the GCU with necessary materials, and three to erect the structure, and the house is about 70 per cent complete after a day's work. A crew of five would then spend a week putting on the finishing touches. Final tally: about 300 hours of labour per home. Overall, Innovequity puts potential savings over conventional construction methods at \$35 per square foot.

Especially when combined with increased production capacity, those savings are particularly appealing to Alfred Nikolai, president and CEO of Habitat for Humanity Edmonton. When Innovequity recently went looking for an opportunity to showcase the GCU, Habitat, a non-profit organization that builds affordable homes for families in need, was a perfect fit. Even with 100 volunteer workers a day, building a Habitat home still takes two weeks. For Nikolai, any innovation that will help Habitat go from the 32 homes it will complete in the Edmonton area this year to the 50 it's aiming for in 2009 will mean fewer families facing a hard decision.

"Affordability depends on the length of time it takes to build a house," explains Nikolai. "If we can reduce that, we can help more families get out of the monthly 'Do I pay the rent or do I buy groceries?' predicament." And if you can do it with a home built by automated technology, he says, all the better. "Because they're built mechanically, everything is straight and air-tight. In essence, they're better homes." He's convinced the GCU will make this possible. "The concept," says Nikolai, eager to put Innovequity's technology to work, "was an enormous act of genius."

- SCOTT MESSENGER

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www.nait.ca/btech

BTech Information Sessions

Edmonton

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Tues. Dec. 2, 7 pm, Room X215, Main Campus

Calgary

Wed. Nov. 5, 7 pm, 816-55 Ave NE

Thurs. Dec. 4, 7 pm, 816-55 Ave NE



BACHELOR OF BUSINESS ADMINISTRATION IN ENTERPRISE MANAGEMENT (BBA)

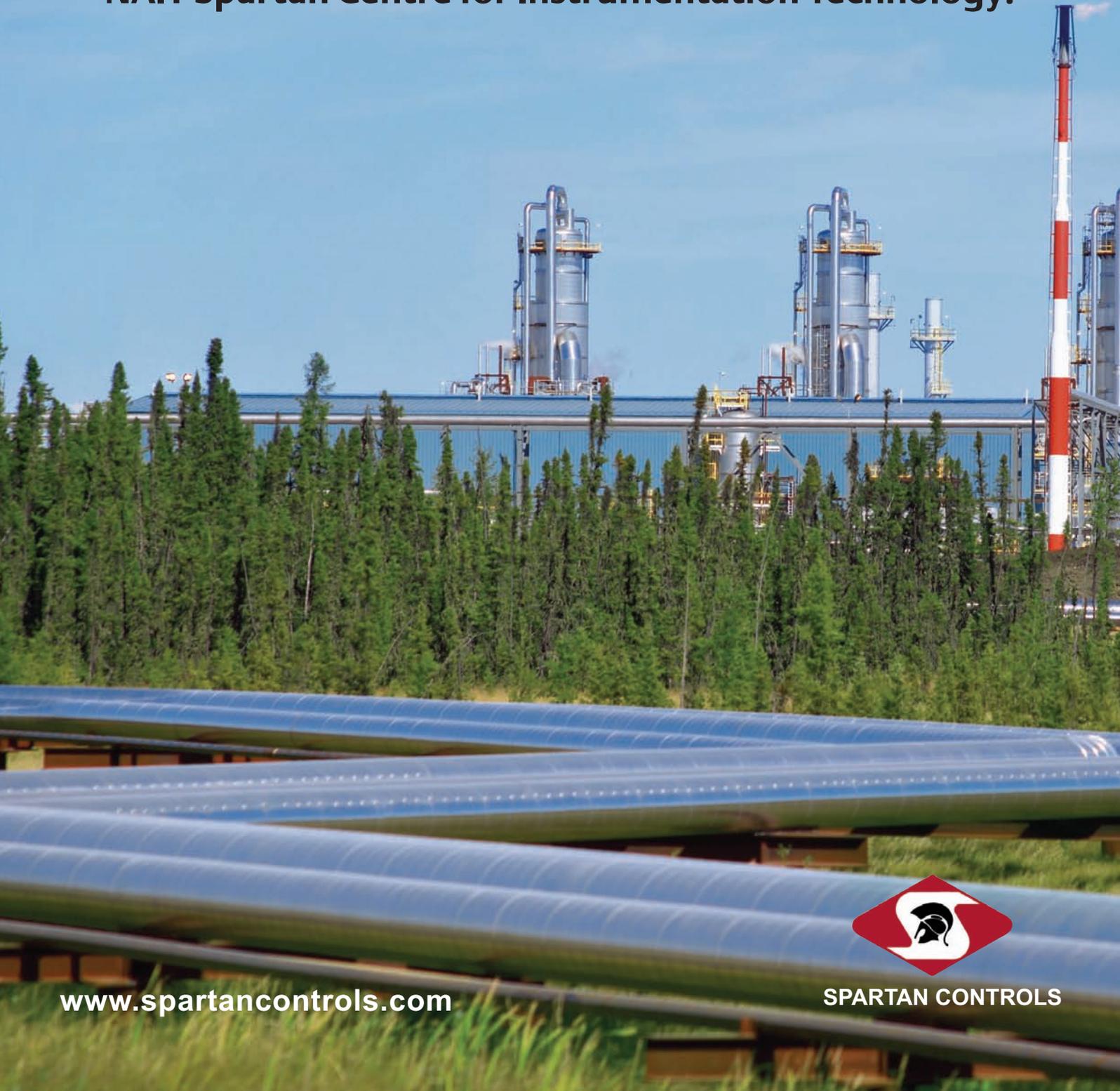
- Students with a business diploma can enter Year 3 directly or with minimal bridging.
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www.spartancontrols.com

SPARTAN CONTROLS

26,500 Albertans have become more energy efficient thanks to Climate Change Central programs.

14,000 have bought new clothes

washers, saving enough water to

fill West Edmonton Mall's waterpark 25 times. 6,000 have traded in their older, heavily polluting vehicles.

JOIN THE
**CLIMATE
CRUSADE**

AT CLIMATE CHANGE CENTRAL'S (C3) EDMONTON OFFICE, THREE NAIT GRADS ARE DRIVEN BY A COMMON AND AMBITIOUS GOAL: TO ENCOURAGE ALBERTANS TO REDUCE THEIR GREENHOUSE GAS EMISSIONS. YET EVEN AS PAMELA KOSS, JOCELYN KWONG AND KAREN HAUGEN-KOZYRA HELP ALBERTANS MAKE GREENER CHOICES, THEIR JOBS AT C3 HAVE LED THEM TO ASSESS THEIR OWN CARBON FOOTPRINTS.



KAREN HAUGEN-KOZYRA
Director, Policy Development and Offsets Solutions Team

"Alberta is always considered the 'bad boy of Confederation' when it comes to greenhouse gases, but the inconvenient truth is that we are taking action while others are just talking about it."

Haugen-Kozyra graduates from **Biological Sciences at NAIT**. She goes on to complete a Bachelor of Science in Plant Pathology and a master's in Soil Microbiology and Biochemistry at the University of Alberta.

After running an environmental consulting company from her home for six years, Haugen-Kozyra joins the Alberta Department of Agriculture and Rural Development, where she later helps shape the national carbon market policy for the agricultural sector.



JOCELYN KWONG
Program co-ordinator

"The simple act of answering a phone call from someone looking for information on energy efficient products is fulfilling because I know I am providing education on greener choices."

Carbon has been a constant theme in her work and by 1997, Haugen-Kozyra says, global warming is on her radar.

NAIT **Bilingual Business Administration** diploma in hand, Koss joins C3 as office manager of the new Edmonton branch.

The job offers Koss more than just the opportunity for professional growth. When she started at C3 she "would recycle and wouldn't litter, but that's about it. When your entire work life revolves around conservation and the environment, your beliefs, your values and your life start to change."

Koss's daily choices to reduce her carbon footprint are now automatic, and include bussing to work, retrofitting her home and unplugging the coffeemaker and her boyfriend's cellphone charger when not in use. "A **plugged-in microwave** will waste more energy when it's not in use than it will in actual operation over its entire lifetime," Koss says.

CLIMATE CHANGE CENTRAL OR C3, A PUBLIC-PRIVATE NOT-FOR-PROFIT ORGANIZATION DEDICATED TO REDUCING GREENHOUSE GAS EMISSIONS IN ALBERTA, LAUNCHES.

THE KYOTO PROTOCOL IS RATIFIED IN JAPAN. THE TREATY COMMITS INDUSTRIAL COUNTRIES TO REDUCING GREENHOUSE GAS EMISSIONS AN AVERAGE OF FIVE PER CENT BELOW 1990 LEVELS BETWEEN 2008 AND 2012.



PAMELA KOSS
Program manager for several consumer-based energy efficiency projects

"Providing incentives is one of the steps we use to get through to people. First you break down the barriers and then you add education as to why certain products are better."

STORY BY **PHOEBE DEY**
 PHOTOS BY **JOHN BOOK, LEIGH FREY AND SUPPLIED**

1983

1997

2001

C3 runs a three-month campaign encouraging Albertans to buy high-efficiency furnaces. A total of 4,000 furnaces are replaced. Over 10 years, homeowners will **collectively save \$15 million** and reduce their greenhouse gas emissions by 90,000 tonnes (equivalent to taking 16,484 cars off the road for one year).



Thanks to a C3 incentive program, Albertans purchase nearly 14,000 energy and water efficient clothes washers. The amount of water saved through the program is enough to fill the West Edmonton Mall waterpark 25 times over.



C3's Hail a Hybrid program helps five taxi drivers buy hybrids. The pilot project shows that a fleet of five hybrid cabs would use **58 per cent less fuel** than a fleet of five Ford Crown Victorias, a conventional Alberta taxi. At 94 cents per litre (and gas is much higher now), C3 estimates the hybrid fleet would save **\$45,000** a year.

Popular opinion about climate change has shifted in recent years, Haugen-Kozyra says. "To see how it's progressed is amazing. We're now 99 per cent certain of the impact and years ago I would go to present to farm groups and hear snickers about what I was saying. Now, it's **backyard barbecue language** and is front and centre in people's minds."

Seconded to C3, Haugen-Kozyra helps develop standards and infrastructure for **Alberta's carbon offset market, the first of its kind** in North America. The offset market is a system for developing, buying and selling emissions reductions or offsets. It's one option to help regulated large emitters reduce their greenhouse gas emissions.

"Because we work at Climate Change Central, we're expected to do more than the average person," says Haugen-Kozyra, "so I work hard to reduce my carbon footprint." She **bikes 28 kilometres** to and from work, buys carbon credits from Air Canada to offset emissions when she flies and buys Energy Star appliances when her budget allows for replacements.

Haugen-Kozyra joins C3 permanently.

One year after its launch, Alberta's carbon offset market has led to emissions reductions of **1.5 million tonnes**, equivalent to taking nearly 274,725 cars off the road for one year, mostly by reducing tillage and using more wind power. "We're often labelled big bad 'Oilberta,' but with this carbon market, we are showing that reducing emissions can be done," Haugen-Kozyra says.

Koss leads a pilot project with a major oil and gas company that, in a new take on **employee benefits**, provides incentives for staff to make energy efficient changes at home.

CLOSE TO **26,500** ALBERTANS HAVE BECOME MORE ENERGY EFFICIENT THANKS TO C3'S CONSUMER-BASED PROGRAMS.

After graduating from Office and Records Administration, Kwong becomes office manager, replacing Koss who is promoted to program manager.

Like Koss, Kwong **knows very little about climate change** or conservation when she joins C3. "Now recycling is second nature. CFL (compact fluorescent light) bulbs are in our home, and I use transit where we once carpooled. The toaster is unplugged as soon as it's used. Being here has changed the way I live."

AL GORE'S ACADEMY AWARD-WINNING DOCUMENTARY, "AN INCONVENIENT TRUTH," ALONG WITH HIS LECTURES AND BOOK, HELP PUT CLIMATE CHANGE ON THE PUBLIC AGENDA, LATER EARNING GORE THE 2007 NOBEL PEACE PRIZE, WHICH HE SHARED WITH THE UN INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE.



Promoted to program co-ordinator, Kwong now helps run Car Heaven. Since launching in 2003, the program has taken more than **6,000 older, heavy polluters** off Alberta roads by offering motorists incentives to turn in their vehicles for scrapping or recycling. Incentives include GM credits, transit passes and bicycles.

Kwong plays a key role in designing C3's new office, **a model of green design**. The new space incorporates recycled wood trim and carpets, local and rapidly renewable materials, low VOC (volatile organic compounds) paint and a lighting plan that uses as much daylight as possible to reduce energy consumption.

VISIT CLIMATECHANGECENTRAL.COM TO LEARN MORE ABOUT THE CHANGES KOSS, KWONG AND HAUGEN-KOZYRA HAVE MADE AND TO FIND ENERGY EFFICIENCY TIPS, VIDEOS, STEP-BY-STEP GUIDES AND INFORMATION ON UPCOMING CONSUMER REBATE PROGRAMS.

2004

2006

2007

2008



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w w w . w a i w a r d . c o m



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and we have your success in focus**
with Sandvik Coromant Centre for Machinist Technology Awards.



Your success in focus

PHOTO BY
LEIGH FREY

LEARN TO KEEP COOL



NAIT JOHNSON CONTROLS CENTRE FOR BUILDING ENVIRONMENT TECHNOLOGY



HVAC Specialist certificate students in the Air Flow Lab - one of four labs equipped with the latest technology in the NAIT Johnson Controls Centre for Building Environment Technology. The entire facility is wired with ASHRAE BACnet protocol, which allows a common language to control the refrigeration, heating, ventilation and air conditioning systems and increases the use of sustainable technology. Used to train the HVAC Specialist certificate and the Building Environmental System Technology diploma students, the centre's capacity has doubled and will accommodate future plans to train Refrigeration apprentices.

COZY CAMPUS

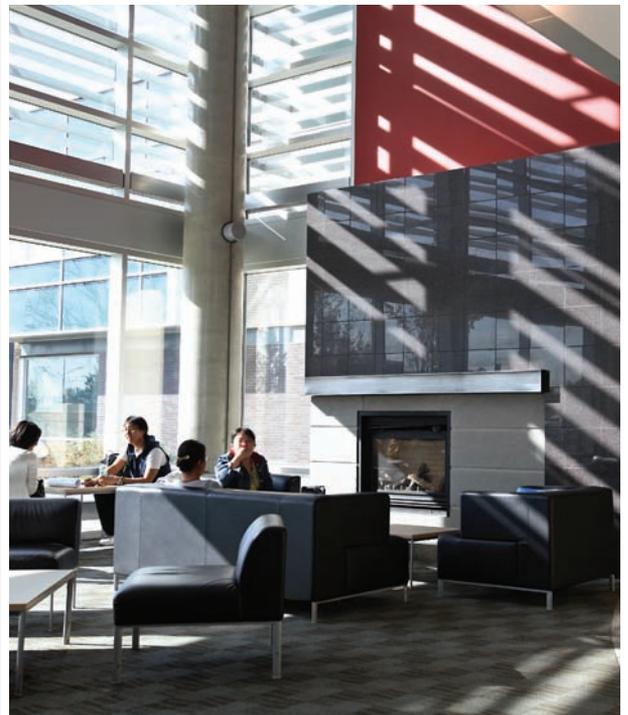


FAVOURITE HOT SPOTS



PHOTOS BY
**JASON NESS AND
EVAN WILL**

Left, encased in a glass tower, flames dance in the fireplace that divides the NAIT Spartan Centre for Instrumentation Technology and the NAIT Petro-Canada Centre for Millwright Technology, built in 2007. Below, the fireplace at the students' association office lounge was added in 2006 during a renovation. Bottom, installed in 2002, the fireplace in the HP Centre is a favourite gathering place for students.



OLYMPIC TRAINING VENUE

HOKANSON CENTRE HOSTS 24-HOUR PRACTICE

PHOTOS BY
JASON NESS

WEB EXTRA

Video and photo updates from the competition in Germany.

techlifemag.ca/culinaryolympics.htm
[flickr.com/nait](https://www.flickr.com/photos/nait/)

Right, Team NAIT competitors prepare to glaze the creations they have spent hours preparing during their final marathon practice session before the Culinary Olympics in Germany, Oct. 19 to 22. Food in the Olympic competition is prepared hot but presented cold; the glaze preserves the creations for presentation.



PRACTICE FOR WORLD CULINARY COMPETITION



Left, coaches, team members and volunteers spent almost 24 hours in the kitchen during this mid-September training session for the world's largest food competition. The five Team NAIT competitors, who are either current students or recent grads of NAIT's culinary programs, know the long hours are needed in order to compete against the best chefs in the world.

The Hokanson Centre for Culinary Arts is home to the School of Hospitality and Culinary Arts, which includes Ernest's dining room (immediate left).

UNDER THE Q

THREE TOPICAL
QUESTIONS FOR 10
INTERESTING PEOPLE

Q1: WHO IS YOUR HERO?

JOE DEWITTE PAGE → 18
Alum; Founder and president, EMS Edutainment Inc.

Hero: My mom. You'd have to be a superhero to have put up with me as a teenager and still love me.

Social media: YouTube, for entertainment and research.

Invention: The ability to fly. We can travel anywhere we want and learn about other countries.

JEREMY FURZER PAGE → 52
Alum; Co-inventor of the Thermablade

Hero: Canadian Forces members serving in Afghanistan – they are so loyal to Canada and our values that they are willing to put their lives in harm's way.

Social media: Industry forum Mine Info. Occasionally I read hockey blogs to see what people are saying about Thermablade.

Invention: The automobile – I relate my life's adventures more to my car than my PC.

HARDEEP GILL PAGE → 56
Associate chair of NAIT's Bachelor of Applied Business – Finance

Hero: Don't have one.

Social media: YouTube and Break.com.

Invention: The microchip – it allowed for the development of most technologies we use today.

JAMES GRAY PAGE → 11
Alum; Co-inventor of Freemail

Hero: Dick and Rick Hoyt. For 29 years, Dick has pushed his son, who was born a spastic quadriplegic with cerebral palsy and unable to speak, across finish lines in nearly 1,000 races (teamhoyt.com).

Q2: WHAT SOCIAL MEDIA DO YOU USE?

Social media: Facebook and my blog.

Invention: AC electricity.

RUTH KELLY
President and CEO of Venture Publishing Inc. and publisher and editor-in-chief of Alberta Venture; 2008 NAIT Honorary Diploma recipient

Hero: I don't believe in hero worship, though I admire individuals who reach out to those in need.

Social media: I experiment with all forms of social media to keep up with the industry in which I work.

Invention: Gutenberg's printing press and movable type.

DON METZ
President of Aquila Productions; 2008 NAIT Honorary Diploma recipient

Hero: My father Harry Metz was my first hero and to this day I look up to him.

Social media: Don't use social media. I'm a face-to-face or phone guy. I still handwrite letters, though I do rely on my Blackberry to manage phone calls and email.

Invention: The computer is the greatest modern day invention.

GRAHAM MILLER PAGE → 12
NAIT instructor, Computer Systems Technology

Hero: Terry Fox. If anybody proved you can do anything with your life, he did!

Social media: MSN, mostly to keep in touch with friends all over the world.

Invention: The wheel – it is at the heart of everything else we have ever built.

Q3: WHAT IS THE GREATEST INVENTION?

NAP PEPIN PAGE → 14
Alum; Builder of the lithium BugE

Hero: Bill Gates

Social media: Technical forums to problem-solve and keep current with PIC processor technology, which is central to most of my electronics projects, and YouTube for demonstrations.

Invention: The PC. Coupled with the Internet, it is the single most powerful tool.

BEN SILVERBERG PAGE → 18
NAIT associate vice-president of Research and Innovation

Hero: My parents rank highest on my list of heroes. Qualities I most admire include a belief in making a difference, and facing stiff opposition, persecution or failure and growing from it.

Social media: Digg, Twitter, podcasts, StumbleUpon, Hacker News, Delicious and Facebook.

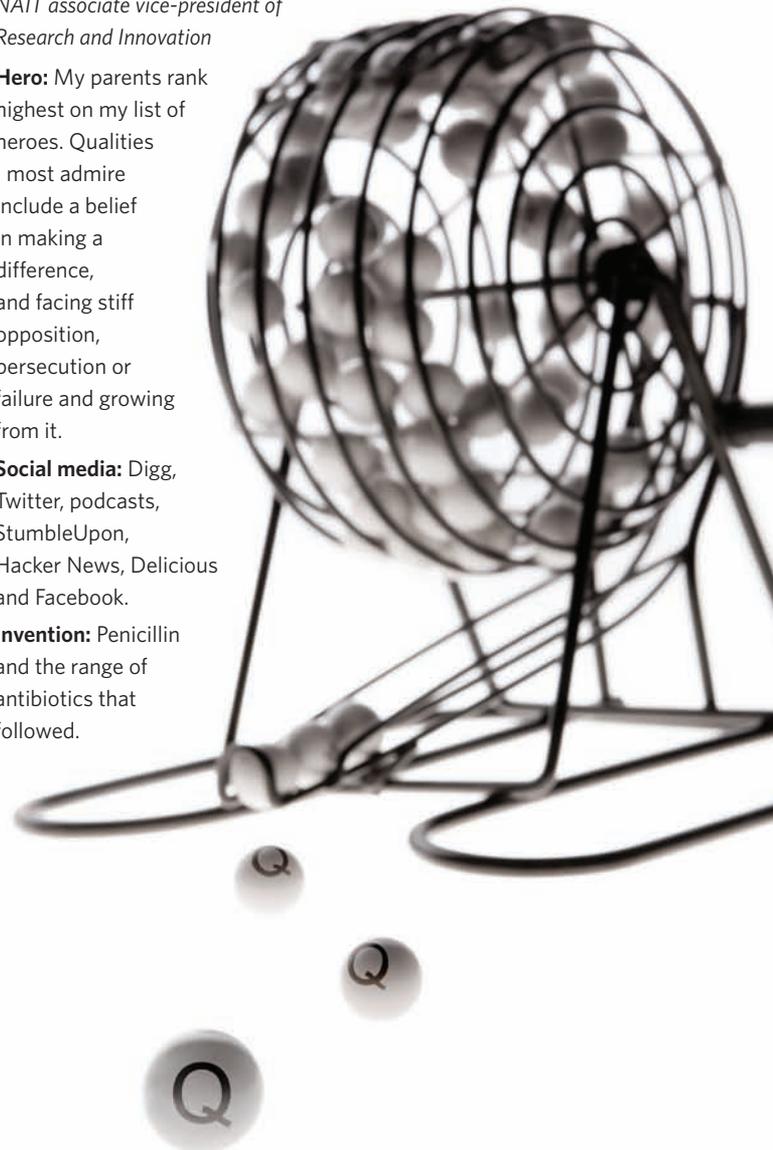
Invention: Penicillin and the range of antibiotics that followed.

SAM SIMPSON PAGE → 44
Alum; Owner of Edmonton Veterinary Rehabilitation Clinic

Hero: Jane Goodall. Her work with primates is nothing short of inspirational. Her quote says it all: "We have the choice to use the gift of our lives to make the world a better place."

Social media: Facebook, to reconnect with past friends.

Invention: Digital camera.





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CRUISER (LEFT), A GERMAN SHEPHERD POLICE DOG, HAS A GENETIC DISEASE CALLED FIBROTIC MYOPATHY. THANKS TO TWICE-WEEKLY ULTRASOUND TREATMENTS, CRUISER IS STILL ON THE BEAT, CATCHING BAD GUYS.



Pet

project

STORY BY
LISA RICCIOTTI

PHOTOS BY
LEIGH FREY

REHABILITATION TECH SAM SIMPSON DISCOVERS 'THE BEST JOB IN THE WORLD' IS GIVING DOGS AND CATS A NEW LEASE ON LIFE.

For some entrepreneurs, starting a business means breaking new ground. For Sam Simpson, co-owner of what is believed to be Alberta's first licensed animal rehabilitation facility (one of only a handful in Canada), it also means getting into deep water – literally. As a certified canine rehabilitation technologist, Simpson has mastered the art of slipping into a wetsuit and climbing into a giant aquarium-like tank. There she puts dogs of all sizes – and the occasional intrepid cat – through their paces on an underwater treadmill.

The Edmonton Veterinary Rehabilitation Clinic opened in February and offers a range of customized treatments aimed at reducing pain while increasing mobility, strength and endurance. While rehab has long been recognized as beneficial for humans, such therapy is still uncommon for dogs and cats.

Among the patients on today's schedule: a handsome mixed-breed rescue from the Caribbean, recovering from a ruptured cruciate ligament – one of the most common canine knee injuries; a stately golden retriever with bone cancer, slated for post-surgery massage; and a border collie, injured during agility training. In a large sunlit room, owners who have travelled from Red Deer are learning dance-like exercises for their bichon, an arthritis sufferer, while a large elkhound-cross makes a dignified exit post-treatment for spondylosis (degeneration of the spine). Relaxing under the heat of a deep-muscle thermal ultrasound is canine celebrity Cruiser, the German shepherd police service dog responsible for tracking down Edmonton's notorious Duggan Rapist a year after he brutally raped a mother while forcing her seven-year-old son to watch. A genetic disease called fibrotic myopathy is causing lameness in Cruiser's right rear leg, threatening to cut short his career and, if it gets bad enough, his life. Thanks to twice-weekly treatments, Cruiser is still on the beat, catching bad guys.

"It's made a big difference," says Cruiser's handler, Acting Sgt. Tom Bechthold. "He's just a year away from retirement and hopefully these sessions will keep him active until then."

Nearby another star patient, Buffy, prepares to swim for her life. A feisty six-year-old miniature dachshund, Buffy became completely paralyzed within 24 hours of rupturing a disc in her lower back. Although success was not guaranteed, owners Heather and Craig Montgomerie chose surgery rather than to put her down – a decision they'd sadly had to make for their previous dachi at the same age and with the same injury. After surgery left Buffy pain-free but still unable to stand without support, the Montgomeries decided to try aggressive rehabilitation on the surgeon's recommendation. Buffy started underwater treadmill and additional therapy almost immediately. Within two weeks, she'd taken her first steps.

An estimated 47 per cent of small and medium enterprises are owned, at least in part, by women.

– STATISTICS CANADA

"It was a very emotional moment, enough to make your heart leap out of your chest," says Simpson, who spent hours splashing with Buffy. "I'm lucky to do what I do; I have the best job in the world."

Simpson describes Buffy as "a fighter, a very determined personality." She could well be describing herself. Simpson has created a tranquil spa-like environment at her clinic, but not without persistence. The final product - with stone water fountains, relaxing music, bonsai plants, Japanese prints, floor mats and a Zen-like vibe - belies the challenges behind it. "I'm very stubborn, very driven," says Simpson.

As a student in NAIT's Animal Health Technology program, Simpson developed a keen interest in pain management and rehabilitation, spurred on by the needs of Titan, a Rottweiler she adopted from the pound after his guest appearances at NAIT classes for students' training.

After graduating in 2002, Simpson spent the next four years honing her skills as a vet tech at several Edmonton veterinary practices and the south-side emergency clinic. She loved the hands-on nursing but wanted more rehabilitation training. After taking every continuing education course possible, she hit a dead-end in her search.

Then Titan led her to her ultimate career path. As he became progressively lamer, but no cause could be diagnosed, Simpson took Titan to the newly opened Canine Fitness Centre in Calgary. She returned with a home-exercise program for Titan - and information on rehabilitation courses for herself. Seeing the improvement in Titan from



exercise alone, Simpson says: "I knew it was what I had to do."

Never mind that the only two certification options were in the United States - or that she was newly pregnant. On the day she learned she was having twins, Simpson flew to the Canine Rehabilitation Institute in Florida. As she got bigger and bigger, so did her plans. Originally she'd intended to continue working at Mill Creek Animal Hospital post-pregnancy, occasionally using her new skills. Instead, she approached Mill Creek owner Dr. Karen Allen with a proposal: a new, independent clinic, totally devoted to veterinary rehabilitation.

CASE STUDY

PATIENT NAME: Tinkerbell
 DESCRIPTION: Well-cared-for, eight-year-old spayed feline with a weighty problem.
 PRESENTING COMPLAINTS: Despite owner's best efforts in limiting treats and switching to a low-cal diet, Tinkerbell has ballooned to almost twice her normal size, tipping the scales at 19 pounds. Owner is distressed at Tinkerbell's obvious discomfort; Tinkerbell can no longer groom herself and rarely plays, and may be grieving for the loss of her feline companion, deceased several months earlier. Owner also concerned about future health risks.



Diagnosis: Morbid obesity. Complete blood workup revealed no abnormalities; thyroid testing also normal. Aside from Rubenesque figure, Tinkerbell appears in good health. Immediate treatment required to prevent further weight gain.

Treatment protocol: Since restricting calories has had no impact, increase activity to burn them off. Best option: water therapy to prevent strain on over-burdened joints - assuming patient co-operation.

First session: Tinkerbell willingly donned life jacket, but panicked as water entered tank. With continual coaxing by attending rehabilitation technologist Sam Simpson, aided by owner's encouraging cries of "Come to Momma, baby!" progress was made - without food rewards. A brisk, if less-than-enthusiastic, gait on moving treadmill was achieved and sustained.

Prognosis: "Woo-hoo Tinkerbell!! I think this will work!" says Simpson. With twice-weekly water therapy, plus home exercises, a trimmer Tinkerbell is a hopeful outcome.

WEB EXTRA

See Tinkerbell's treadmill water therapy + get an iTunes playlist inspired by the workout.

techlifemag.ca/treadmill.htm



SURGERY ON A RUPTURED DISC LEFT BUFFY PAIN-FREE, BUT STILL UNABLE TO STAND WITHOUT SUPPORT. WITHIN TWO WEEKS OF STARTING UNDERWATER TREADMILL AND ADDITIONAL THERAPY, SHE'D TAKEN HER FIRST STEPS.

Again, dogged determination paid off. Simpson and Allen launched an educational campaign including "lunch-and-learns" at vet practices where they explained their clinic and its goal of collaborating - not competing - with diagnosing vets. Endless PowerPoint presentations later, the Edmonton Veterinary Rehabilitation Clinic became what is believed to be the first rehab facility to receive an AB.VMA licence - and the vet board is currently consulting the clinic to develop regulations for future rehab clinics in the province.

"Honestly, we haven't had a case where rehab hasn't helped," says Simpson. "A centre's been needed here for a long time."

Educating professionals and the public on rehabilitation's benefits will be an ongoing process for Simpson and her new business partner, Dr. Sandra Reid, a nutrition expert and former NAIT instructor, but a number of vets are already on board. Among them is Dr. Colin Sereda, the Western Veterinary Specialist Centre surgeon who repaired Buffy's back. "Every human orthopedic patient gets follow-up rehabilitation, and rehab therapy definitely improves outcomes for animals as well," says Sereda. "It's a huge benefit to have the clinic's services post-surgery."

For proof, look no further than Buffy, drying off after her happy dog paddle. Session completed, Simpson hangs up her wetsuit to prepare for her next appointment, a canine massage on terra firma. No time to get dry behind the ears; less than a year since the clinic opened, Simpson is eager to keep getting her feet wet as a pioneer in a still-evolving field. And so far, things are going swimmingly. ■

"Karen was all over it and decided to get her rehabilitation certification too," says Simpson, who then spent her maternity leave laying the groundwork with Allen, who eventually opted out after the clinic opened so she could focus on her family and her original practice. "We put together a business plan, although I'd never done one before. It was intimidating; vet rehab is all new territory, so there was nothing with which to compare our future practice. But the bank said it was the best plan they'd seen."

Funding secured, one major hurdle remained: licensing from the Alberta Veterinary Medical Association (AB.VMA). That was a potential deal-breaker. "We weren't going to do this without licensing," Simpson states, since the clinic's vision was to work with vet-referred clients. And to earn veterinarians' trust, an AB.VMA licence was essential.

Five years after graduating, 12.5 per cent of NAIT grads are business owners.

- CLASS OF 2002, GRADUATE EMPLOYMENT SURVEY

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CLOCKWISE FROM TOP, QUENTIN GLABUS, EXECUTIVE CHEF TO THE CANADIAN AMBASSADOR TO JAPAN, PLATES A DISH OF BRIE WRAPPED IN RADICCHIO WITH SWEET ONION AND APPLE MARMALADE, AND TURNIP CHIPS; MISO, MAPLE AND CANADIAN ICE WINE MARINATED SALMON ON WILD RICE AND CRANBERRY SALAD, TOPPED WITH STRAWBERRY BASIL SALSA; FRESH SCALLOP SASHIMI WITH FRIED ROE ON JAPANESE TOMATO AND LEMON THYME OIL; A SHRINE IN THE ASAKUSA DISTRICT OF TOKYO; FROM LEFT, IMRE HEGEDUS, YOSHIHARU ONITAKE, MAUNG MYINT SOE AND GLABUS WAITING TO ATTEND A RECEPTION.



JULY 13, 2008

HEY THERE EVERYONE BACK HOME IN **CANADA,**

Well I must say that Tokyo has been great. The people here are wonderful and always willing to help, even if they don't know what you're talking about. But what a difference in culture! The great thing about the fashion here is that everyone just wants to be themselves; there are no real trends that people follow.

So far the toughest adjustment has been the portion size. North Americans are used to large portions; here in Tokyo, the sizes are small but they "eat with the eyes first," as we would say in the industry. That has taken a lot of adjusting to and I keep second-guessing myself because I'm so used to what we do back home. I get to test out my ideas too, and I've had no complaints so far! LOL.

Work is going well, I'm settling in nice and the nerves are gone now. I had my first experience with the fish market, WOW!! I didn't have enough money in my pocket or I would have bought one of everything.

Take care and I hope things are fine back home,

Miss you all,

QUENTIN GLABUS
EXECUTIVE CHEF
CANADIAN EMBASSY, TOKYO, JAPAN
(CULINARY ARTS '00)

PHOTOS BY **QUENTIN GLABUS, IMRE HEGEDUS AND YUJI NISHIMOTO**

GEOLOGY/GEOPHYSICS
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SYSTEMS
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CLOCKWISE FROM TOP, BALLOONS AND RIBBONS DECORATE THIS DEVON ISLAND CAMP, WHERE FOG HAS ROLLED IN OFF THE OCEAN, THREATENING THE VIEW OF THE TOTAL ECLIPSE OF THE MIDNIGHT SUN. FAR RIGHT, LINDSAY RACKETTE. RIGHT, THE NAIT INSTRUCTOR HAS BEEN GUIDING BACKPACKERS ON TWO-WEEK TRIPS TO DEVON ISLAND, NUNAVUT SINCE 2000.



AUGUST 1, 2008

NOT SINCE 1932 HAS A TOTAL ECLIPSE OF THE SUN BEEN OBSERVED IN CANADA'S HIGH ARCTIC.

What makes an eclipse of the sun special at this latitude (74 degrees north) is that it can occur during the midnight sun, and at 4:23 a.m. today, 14 of us were hoping to view this rare event from the north coast of Devon Island.

Watching the skies as evening approached, we set up camp, decorating the tents and tarps with balloons and ribbons to celebrate the occasion. The skies were clear, a gentle breeze was blowing and the 80 per cent probability of cloud cover seemed a distant threat. That was until about 9 p.m., when the wind shifted direction and brought fog in off the Arctic Ocean.

Weather conditions can change quickly in the Arctic, so with alarms set for 3:30 a.m., we climbed into our sleeping bags, expecting not to see the eclipse, but hoping the fog would clear. By the time our alarms went off, the fog had lifted a little, but it was obvious we wouldn't see the sun disappear - only the darkness that was to follow.

As the eclipse started, the tundra began to slowly lose its definition, until seconds before totality when the heavenly electrician powered down his generator and we were thrust into darkness for 2½ minutes. We mused about the degree of darkness, how quickly it had come, and how early cultures would have interpreted what was happening.

Then as quickly as it had come, the darkness lifted, returning to a normal light level over the next hour. With breakfast not for another three hours, we went back to our sleeping bags to ponder what we had just witnessed. When we awoke to clear blue skies, I was sure I could hear celestial giggling.

LINDSAY RACKETTE
NAIT ELECTRICIAN INSTRUCTOR

PHOTOS BY **LINDSAY RACKETTE AND JOHN CARSWELL**

NOW FOR THE NEWS

WHEN OIL PRICES RISE OR MARKETS FALL, WHERE DO THE EXPERTS TURN?

"For a review of business issues, I like the *Harvard Business Review* and *The Economist*. I appreciate the in-depth analysis contained in these publications. For local news, I like Global TV and the Edmonton Journal. For international news, I like CBC, CNN and The Globe & Mail."

KEVIN NAGEL

Dean of NAIT's JR Shaw School of Business

"Besides the daily papers, my favourite sources for business news include Monday's National Post, which normally has a section devoted to small business; *Inc.* magazine, a U.S. publication that profiles successful entrepreneurs, highlights business issues, reports on business trends and presents cases on small business; and, for coverage of business in the province, *Alberta Venture* magazine."

JAY KRYSLER

Instructor in NAIT's Bachelor of Business Administration in Enterprise Management program

"*Alberta Construction Magazine* online, found at albertaconstructionmagazine.com, keeps me in touch with the Alberta construction market. The site doesn't focus solely on the construction projects that are underway, but also factors that contribute to a positive construction market, such as population growth and major projects being announced."

MARK HOLTOM

CEO of Innovequity

"My primary source of business news is the good old Edmonton Journal. As someone whose background is real estate development (an industry that is largely governed by the local economy), I need a detailed and accurate view of Edmonton's short- and long-term outlook."

BEN BERTRAND

CTO of Innovequity





HOTTEST THING ON ICE

INVENTOR'S HEATED SKATE BLADE GETS GRETZKY'S BUY-IN, MAKES "THE NEW YORK TIMES MAGAZINE" ANNUAL BEST IDEAS LIST.

As a kid, he'd join in games of shinny on a frozen pond near the farm where he grew up in New Brunswick, but he hasn't played hockey in the 20 years since. He'll watch the sport on TV - he's Canadian, after all - but when the Edmonton Oilers get skated out of contention, his interest quickly shifts to other concerns.

All things considered, Jeremy Furzer seems an unlikely candidate for being a pivotal player in a movement that none other than Wayne Gretzky thinks will revolutionize hockey: Furzer is the co-inventor of the Thermablade, a performance enhancing battery-powered heated skate blade now being tested in the NHL.

After years of development and testing, the Thermablade officially launched at select distributors in October 2007. *The New York Times Magazine* named it among the 70 best ideas of the year. Furzer and co-inventor Tory Weber hope the Thermablade will dominate the hockey skate-blade domain the same way composite hockey sticks have supplanted wood.

The tale of Furzer's foray into the hockey history books starts with a friendship. After transferring between Alberta and New Brunswick and a number of jobs in the engineering industry, Furzer and his young family settled in Edmonton in the late '90s. One morning at church he met Weber, another new family man in town.

The two were buddies for more than a year before Weber confided in Furzer about a "crazy idea" he had been keeping to himself, with a few exceptions, for 15 years.

Weber explained to Furzer how, when he went to get his paper one cold Calgary morning in 1985, he pulled his sneakers off a heat register, put them on

and, the moment the warm soles hit the frosty porch, promptly landed on his rear end. He figured the heat had reduced the normal friction between rubber and ice, and it got him thinking - perhaps the same principle could help skaters skim over ice faster.

Knowing Furzer's background in engineering, Weber asked his friend if he thought the idea was practical.

"I researched it for about a week and a half, then told Tory I thought it was possible," Furzer says. "He was surprised, because he said he'd already talked to (a number of scientists and engineers) who told him it couldn't be done. I said, 'Thanks for telling me that now,' and we had a good laugh."

For the next year and a half, the two friends met six days a week to talk Thermablade during 6 a.m. workouts, followed by trips to Tim Hortons.

When they started the project in 2000, Furzer discovered a patent for a similar idea from the '70s that heated skate blades with a lead-acid motorcycle battery and required the wearer to sport a five-kilogram backpack connected to the blades by wires.

The advent of rechargeable lithium batteries and semiconductor-based heating systems made a more practical design possible. "No one had followed up on the idea since this new technology came along, so we were lucky in our timing," Furzer says.

With seed money from friends and family, the innovators developed the first of a dozen prototypes, each costing about \$100,000, and set off to convince all the important people in hockey - managers, manufacturers and players - that their invention worked, was safe and should be legal to use.

Among their targets was the de facto head of the hockey

universe, Wayne Gretzky. In 2004, Furzer and Weber persuaded The Great One by sending him a prototype they'd designed specifically for him. Gretzky was supposed to keep the skates for a week, but didn't send them back for three months. "He loved them and came aboard," Furzer says.

Since the Thermablade's launch, demand has been strong, but product evolution and changes to the design and assembly of electronic components have restricted sales to date, says Sam McCoubrey, vice-president of sales and marketing for manufacturer Therma Blade Inc., adding that a new model which incorporates those changes, the Thermablade Elite II, was released this summer.

At a Pro Skate store in Edmonton, the first order of blades, which retail for \$299, sold out in less than a week, says store manager Jeremy Schmuland. A second order sold out soon after. "The feedback from customers has been glowing - better than glowing, actually," Schmuland says.

McCoubrey says he expects sales to pick up once the NHL clears the blades for use in games. Five players started testing the blades last fall. Four others joined the trial in February. That number climbed to 150 in the off-season. While McCoubrey says he isn't sure how many will test the Thermablade this season, he expects it to be well beyond the target of 50.

Furzer is optimistic the blades will be allowed at all hockey levels, but he's not as anxious about the decision as he might have been - he recently, happily, sold his half of the company to Weber, who had mixed emotions when his friend opted out. "I was sad he moved on, but I was happy that he was justly rewarded for his efforts," Weber says.

THE INNOVATORS SET OFF TO CONVINCE ALL THE IMPORTANT PEOPLE IN HOCKEY THAT THEIR INVENTION WORKED, WAS SAFE AND SHOULD BE LEGAL TO USE.

STORY BY
RYAN SMITH
PHOTOS BY
JASON NESS

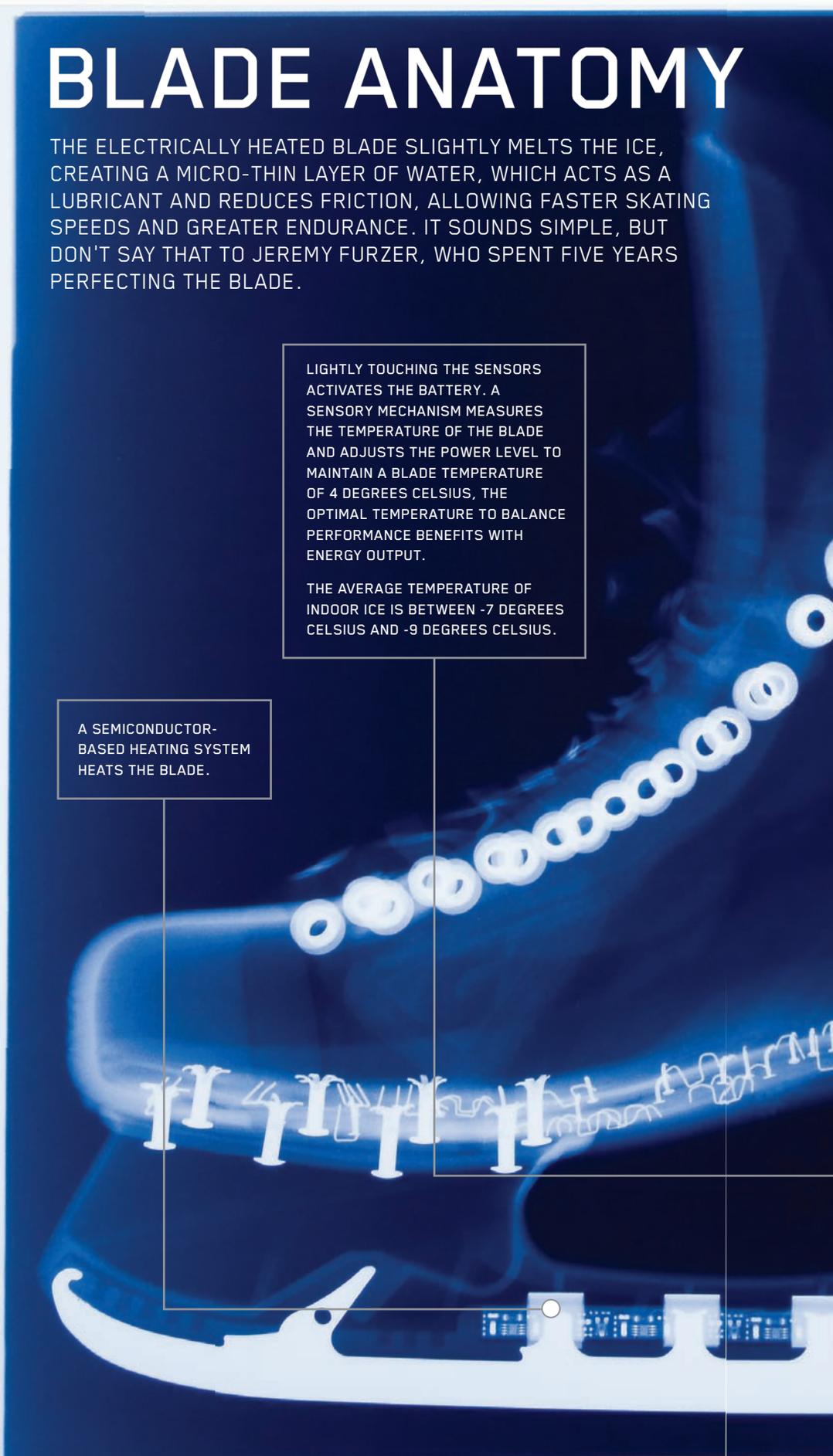
BLADE ANATOMY

THE ELECTRICALLY HEATED BLADE SLIGHTLY MELTS THE ICE, CREATING A MICRO-THIN LAYER OF WATER, WHICH ACTS AS A LUBRICANT AND REDUCES FRICTION, ALLOWING FASTER SKATING SPEEDS AND GREATER ENDURANCE. IT SOUNDS SIMPLE, BUT DON'T SAY THAT TO JEREMY FURZER, WHO SPENT FIVE YEARS PERFECTING THE BLADE.

LIGHTLY TOUCHING THE SENSORS ACTIVATES THE BATTERY. A SENSORY MECHANISM MEASURES THE TEMPERATURE OF THE BLADE AND ADJUSTS THE POWER LEVEL TO MAINTAIN A BLADE TEMPERATURE OF 4 DEGREES CELSIUS, THE OPTIMAL TEMPERATURE TO BALANCE PERFORMANCE BENEFITS WITH ENERGY OUTPUT.

THE AVERAGE TEMPERATURE OF INDOOR ICE IS BETWEEN -7 DEGREES CELSIUS AND -9 DEGREES CELSIUS.

A SEMICONDUCTOR-BASED HEATING SYSTEM HEATS THE BLADE.



X-RAY BY
SEAN KUZMINSKI
NAIT Medical Radiologic
Technology Instructor

THE LITHIUM BATTERY.
A FULLY CHARGED
BATTERY CAN PROVIDE
ABOUT THREE HOURS
OF CONTINUOUS USE.

WHEN THE PLAYER
IS OFF THE ICE, THE
HEATING MECHANISM
AUTOMATICALLY SHUTS
DOWN TO CONSERVE
BATTERY POWER.

WHEN THE BLADES ARE
NOT IN USE, THEY SIT IN
A CHARGING CRADLE.



JEREMY FURZER ENJOYS WATCHING HOCKEY, BUT HE HASN'T PLAYED SINCE HE WAS A KID, MAKING HIM THE UNLIKELY INVENTOR OF A HEATED SKATE BLADE THAT COULD REVOLUTIONIZE THE GAME.

"Jeremy is like MacGyver," Weber adds. "I don't know how he does it, but he can make something useful out of nothing. Even in the kitchen, you give him a few weird ingredients and he'll make an amazing meal."

Furzer says his resourcefulness comes from growing up on a farm. "If anything broke, we never called anyone to fix it. We'd figure it out and do it ourselves." He also credits his training as a mechanical engineering technologist - he graduated from the NAIT program in 1985 - for providing him with a knowledge base that has propelled him into a number of engineering fields, including nuclear power generation and the design and construction of oilsands bitumen processing plants. "I couldn't have designed the Thermablade if I hadn't had a lot of experience in different engineering fields."

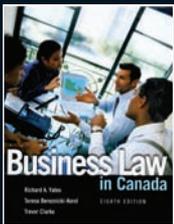
With the Thermablade successfully behind him, Furzer continues to work full time as a project manager in the oilsands industry, but in his spare time he often tinkers with ideas for new inventions, searching for the next big thing. "I'm not a very good hockey player, so I've got to do something," he says, smiling. ■

STEPPING



These books and more are available at the NAIT Bookstore or online at www.nait.ca/onlinestore.

LIMIT PERSONAL LIABILITY



Teresa Bereznicki-Korol, business law instructor in NAIT's Marketing program and co-author of *Business Law in Canada*, advises on the process of incorporation.

As Canadian corporate names imply, limited corporations shield individuals from personal liability. By contrast, sole proprietors or partners face unlimited personal legal responsibility.

Besides protection from personal liability, incorporation also:

- Eases access to capital. Money can be raised by selling shares without requiring new shareholders to participate in running the corporation.
- Facilitates the purchase and sale of shares. Incorporation allows for ownership changes without interfering in business operations.
- Minimizes the impact on the corporation when a shareholder dies. The shares simply pass to the deceased shareholder's heirs.

- Places responsibility for contracts and other activities on the corporation. Shareholders are not personally liable when the corporation is convicted and fined, for example.
- Limits potential financial loss to the shareholders' initial investment.

In Canada, incorporation involves a provincial or federal certificate of incorporation for jurisdictions where business occurs. Provinces and territories also often require federal corporations to register with their jurisdiction.

A corporation can be wholly owned by one or multiple shareholders. In filing articles of incorporation, incorporators should:

- Provide a corporate name, describe the share structure and identify the type of corporation being formed.
- Provide director information and a corporate address.
- Consult a lawyer, particularly concerning the share structure and restrictions on transferability of shares.
- Submit a \$100 fee (Alberta), \$200 fee (federal: online) or \$250 fee (federal: fax, mail or in person).

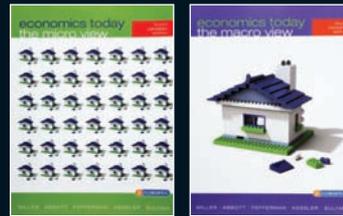
More information: servicealberta.ca and corporationscanada.ic.gc.ca

OUT ON YOUR OWN?

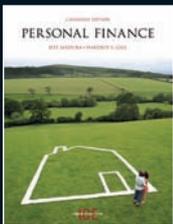
EXPERTS FROM THE JR SHAW SCHOOL OF BUSINESS ON WHAT ENTREPRENEURS SHOULD KNOW ABOUT RUNNING THEIR OWN COMPANIES.

TURNING A PROFIT?

Sole proprietors often grossly exaggerate their profits because they understate their own investment in their companies. NAIT Business instructors **Brenda Abbott, Sam Fefferman** and **Terry Sulyma**, co-authors of *Economics Today: The Micro View* and *The Macro View*, explain how to assess the financial viability of any potential business opportunity by taking all costs into account.



MINIMIZE RISK



Hardeep Gill, associate chair of NAIT's Bachelor of Applied Business – Finance and co-author of *Personal Finance*, on how entrepreneurs can minimize their economic risk.

Because entrepreneurs and their businesses are inextricably linked, entrepreneurs should take out personal and business insurance to protect their personal net worth and companies in the event of illness, injury or death.

MINIMIZE THE PERSONAL IMPACT

By sharing the risk of personal illness, injury or death with an insurance company through the following coverage options, entrepreneurs can continue to provide for their families:

- Personal life insurance
- Disability insurance
- Critical illness insurance

MINIMIZE THE PROFESSIONAL IMPACT

Entrepreneurs also face the challenge of business viability in the event of illness, injury or death. These often overlooked insurance policies can help keep the business going:

- Overhead expense insurance covers ongoing expenses such as rent or mortgage payments, utilities and employee salaries.
- Key person insurance is taken out on an employee – usually the owner – and covers many types of expenses, including the cost of finding and training a replacement employee.
- Buy-sell insurance covers the transfer of assets and shares.

NORMAL AND ECONOMIC PROFITS DEFINED

Normal profit

After covering all outside expenses, an enterprise provides an annual profit large enough to compensate the owner "fairly" for resources, such as time and capital, personally invested in the new venture. To be considered fair, each resource the entrepreneur provides must earn a rate of return that is at least equal to what it would earn in its next best alternative.

Economic profit

Revenue earned that exceeds the breakeven point for normal profit.

Here's how to use those concepts to assess how well a business did compared to the entrepreneur's next best alternative.

Suppose that after the first year of operation, a business's income statement suggests the company made an \$80,000 profit.

First, establish the personal sacrifices made by the owner:

- \$60,000 salary from the job the owner gave up
- \$5,000 from the five per cent interest that was earned annually on the \$100,000 GIC savings account the owner cashed in
- \$30,000 for taking over a building that the entrepreneur previously rented out for \$2,500/month

Total personal investment = \$95,000

Then, subtract the personal sacrifices from the profit:

- $\$80,000 - \$95,000 = -\$15,000$

In this instance, an economist would say that during the first year of operation the entrepreneur earned an economic profit equal to \$15,000 less than the next best alternative. If the venture continues to earn a negative economic profit the business would be considered an inferior financial investment.



A KITCHEN

IN THE DA CAPO KITCHEN, DANIELE COSTA PREPARES THE INGREDIENTS FOR BUCATINI ALL'AMATRICIANA. SEE PAGE 60 FOR THE RECIPE.

A TRIP TO ITALY BROUGHT THIS CHEF BACK TO HIS ROOTS. NOW, HE PRESENTS THOSE SIMPLE, RUSTIC FLAVOURS IN AN INNOVATIVE WAY AT THE MODERN ITALIAN CAFÉ AND WINE BAR HE OPENED LAST YEAR.

Daniele Costa is one of those rare individuals who knew his calling as soon as – and maybe before – he was talking. “I could show you a picture of me when I was three years old, wearing a chef’s hat,” he says. A couple of decades later, as co-owner and head chef of Edmonton’s Da Capo, Costa hasn’t lost track of his dream – and he hasn’t lost any of his buoyant enthusiasm either.

“He thinks about food from the time he gets up until the time he goes to sleep,” says Peter Jackson of Edmonton restaurant Jack’s Grill. Indeed, Costa can barely contain

NEWS NOW

STORY BY
NAOMI K. LEWIS

PHOTOS BY
JASON NESS

his delight as he describes his favourite dishes and ingredients, and his monumental cookbook collection – and can barely contain his anguish as he contemplates overcooked pasta, or a lovingly prepared pizza reduced to mush by transportation in a take-out container.

Costa graduated from NAIT's Culinary Arts program in 2005. He took summers away from his formal education and his restaurant job at Jack's Grill, and travelled to Italy for a hands-on culinary experience with his relatives in a small town near Naples.

Jackson, and Nigel Webber, Costa's favourite instructor at NAIT, both recall how those trips impacted the young chef's culinary style. He had grown up making wine with his father and preserving vegetables from their garden, but when he began his education, he had little interest in the Italian tradition. "I wanted to do something different from what I grew up with," he recalls. "Like 30 different things on a plate. Big, tall things."

But Italy brought Costa back to his roots and taught him the beauty of simplicity. "Most of your favourite foods," he realized, "have five ingredients." Far from regretting his dalliance with complexity, he has fused the two styles together. "I stick with traditional things, but I have my own way of doing them," he says. "I love simple flavours presented in an innovative way." A dish with simple flavours, he adds, is not necessarily simple to make. The panini bread that sets apart Da Capo's sandwiches, for instance, involves a three-day process.

While Costa was attending NAIT, he regularly went to Edmonton's Café Leva and chatted with owner Antonio Bilotta. It turned out the two had a lot in common. They were both raised by Italian fathers and both

have an inexhaustible passion for good, simple Italian cuisine. Together, they envisioned opening "a modern Italian café slash wine bar," Costa recounts, and in March 2007, the pair opened Da Capo on 109 Street, just south of the High Level Bridge.

"The concept is to introduce what you have in Italy, but with a higher-end feel," Costa says. Most of Alberta's Italian restaurants, he adds, with their spaghetti and garlic bread, serve "Italian-American" food. Da Capo offers ingredients found in Italy – white truffles, black truffles, cured meats, arugula and quail eggs are a few of Costa's favourites. When asked how the co-owners divide Da Capo's labour, Bilotta jokes, "I just eat, and he creates." In fact, Bilotta is responsible for the café's much-touted coffee, while Costa deals with the food and wine. Costa does all the cooking himself, with the help of one sous-chef. Bilotta has more experience running a business, but says that Costa is catching up quickly. On some days – like the one when the fridge broke, ruining its entire contents – "your hair starts falling out," says Costa. But still, he wouldn't have it any other way. "You care so much more," he says, "when it's your own place. Creating your own food, creating your own menu, and seeing how people respond to it." And people are responding by coming back again and again. Webber, for one, eats there weekly. A chef's ideal goal, he says, is to evoke an emotional response with pleasing, straightforward flavours. "And this is what (Costa) is doing now at Da Capo. It's very simple, rustic Italian food, and it's excellent." Costa has grand aspirations for his future – he looks ahead to roomier kitchens and more varied menus, both at and beyond his current restaurant.

"I love what I do," Costa stresses, "and I take it extremely seriously." Admittedly, a few



customers have been startled by the seriousness reflected in some of Da Capo's policies: Costa dissuades customers who request pepper on dishes whose flavours would be overwhelmed; likewise, Bilotta discourages take-out coffee because it should be drunk out of a porcelain cup – they do, however, allow customers to take coffee in their own cups and to take gelato for the road. While many customers appreciate the environmentally responsible policy against take-out containers, some, Costa and Bilotta admit, were outright offended by the now-defunct 'no tap water' rule. And a few haven't reacted so well to ordering at the counter or paying in cash. Costa says the majority of customers enjoy the Italian-style atmosphere once they get used to it, and he accepts that it's impossible to please everyone.

"I have this unbelievable olive oil," he adds. "I have a guy who brings it in from Italy, and I serve it with bread." When customers ask for balsamic vinegar, Costa personally convinces them to enjoy the oil's flavour alone. "I explain where it's from: this is the hill, this is the region." Surely most diners met by this chef's unpretentious charm would be only too glad to put the vinegar bottle aside. ■

BUCATINI

ALL'AMATRICIANA

INGREDIENTS

500g bucatini pasta
(De Cecco, Barilla or Riscossa brand)

10 medium slices pancetta
(Italian bacon), chopped

3 cloves garlic, thinly sliced

½ tsp red chili flakes
(optional)

½ red onion, thickly sliced

½ head Italian parsley,
leaves plucked

1½ cups tomato passata
(puréed tomato) or
good quality tinned
tomatoes, crushed

Extra-virgin olive oil

Kosher salt and freshly
ground black pepper
to taste

Pecorino Romano
cheese, for grating

METHOD

1. Add a small handful of salt to a large pot of water and bring to a boil.
2. Add a little extra-virgin olive oil to a 12-14 inch sauté pan and heat over medium-high heat. Add the pancetta and cook until almost golden brown and most of the fat has rendered off. Add the red onion and chili flakes, continue cooking and stirring occasionally until the onion is almost translucent. Add the garlic and cook for an additional minute. Add the tomato passata. Reduce the heat to medium and cook for 15 minutes.
3. Cook the bucatini in the boiling water until al dente (just undercooked, about 7 minutes). Drain the pasta, reserving a cup of the pasta water. Add pasta to the sauce. Add the pasta water and parsley and stir gently. Remove from the heat, season with the pepper and serve with grated pecorino Romano.

RECIPE COURTESY
OF DA CAPO CHEF
DANIELE COSTA



"I LOVE SIMPLE PASTAS
AND THIS IS ONE OF
MY FAVOURITES."

THE ROOTS OF THE DISH ARE FROM NEAR ROME, WHERE IT IS TRADITIONALLY MADE WITH GUANCIALE (CURED PORK JOWL). PANCETTA IS MORE READILY AVAILABLE AND HAS A SIMILAR FLAVOUR. THIS QUICK DISH IS PERFECT AFTER A LATE NIGHT WITH FRIENDS OR AS A SIMPLE DINNER. MOST OF THE INGREDIENTS CAN BE FOUND AT REGULAR SUPERMARKETS BUT THE IDEAL INGREDIENTS ARE AVAILABLE AT A SPECIALTY GROCERY SUCH AS EDMONTON'S ITALIAN CENTRE SHOP.

- DANIELE COSTA



"PASTA HAS SUCH BEAUTIFUL TEXTURE, WHY RUIN IT WITH OVERCOOKING?"

- DANIELE COSTA

4 STEPS TO PERFECT PASTA

Many of us boil pasta until it's soft and falling apart, but it should always be al dente, which literally means 'to the tooth'; it should be just cooked through - although, of course, it should never crunch. Costa's trick is to finish his pasta of choice in a sauté pan with just enough sauce and a bit of pasta water. This emulsifies the pasta and sauce, lending the dish a silky texture.

1. USE A GOOD QUALITY DRY PASTA.

Costa's favourites are De Cecco, Barilla and Rustichella d'Abruzzo. Typical grocery store brands tend to use low-quality flour, so their products have too much starch and lack flavour and texture.

2. BRING A POT OF WATER TO A BOIL ON HIGH HEAT.

Add a handful of salt - enough that the water is salty to the taste.

3. ADD THE PASTA AND STIR ONCE SO IT DOESN'T STICK TO THE BOTTOM OF THE POT.

Turn the heat down to medium-high and cook for two minutes less than the packet indicates. Drain the pasta, reserving about a cup of its water.

4. ADD THE PASTA TO YOUR SAUCE IN ITS SAUTÉ PAN.

Add a little pasta water and continue cooking for a minute, stirring constantly. Remove from heat and serve.

eat OUT

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CHEF DAVIE LITKE
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CHEF GORMAN PON
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STORY BY
KRISTEN VERNON

In 1986 Lorne From saw a newspaper ad for the new NAIT Centre for Entrepreneurship. "Be your own boss," the ad enticed. The opening of the centre couldn't have come at a better time: From was among the oilfield workers who had lost their jobs when oil prices plunged. He had long been attracted to the idea of working for himself. As a kid, he'd built his own lawnmower and started a lucrative business, earning 50 cents a lawn. Now, at 45, he figured this might be his last chance.

The centre's 12-week crash course on starting your

own business laid the foundation for Trailers Unlimited, the trailer manufacturing company that From opened in 1987. (Though he'd been a mechanic for 30 years, From decided against opening his own mechanics shop when he flipped through the phonebook and realized just how many already existed.)

The newspaper ad for the Centre for Entrepreneurship also attracted inventor Brad Bradfield, who used what he learned to build a business case and acquire his first patent for a plastic-lined paper mitt.

The idea for the mitt was born on a cold winter day when Bradfield fuelled his car and imagined a plastic glove dispensed on a roll that could be worn over winter gloves, saving his hands from the cold and his leather gloves from the smell of diesel. While it was never dispensed at gas stations, the mitt is among the long-term care products sold by WestBond Enterprises - a company Bradfield helped found.

While business education helped Bradfield launch his first product, he admits he was never able to transition from an idea person to a business person. "The

story about inventors is very true," he says. "Inventors really need entrepreneurs." Bradfield has just left his latest venture, On Shore Boards, which manufactures a board that bridges surfing, skateboarding, snowboarding, inline skating and wakeboarding, and is working as an optical sales rep to save money for his next project, an automated sandbagging machine.

Bradfield and From are among the few Centre for Entrepreneurship clients who actually started their own businesses. Dallas Hauge, who managed the centre, doesn't think that detracts from the success of the program. "I think it was a benefit to everyone who came and went through the process," says Hauge, a NAIT alum whose resumé includes head of NAIT's Computer Systems Technology program and founder of several computer consulting and sales companies. Students, he says, learned whether they were cut out for entrepreneurial life and whether their business plans would fly. And they learned all that for the cost of a course - not at the cost of going out of business.

The centre itself went out of business when provincial government funding ran out, though most of the programming continued on Main Campus.

Twenty-one years after opening Trailers Unlimited, From has handed the company over to his son and an employee, and is ready to retire. While From says it can be a tough grind and you need a certain drive to succeed, being his own boss has been rewarding. "There's more satisfaction in working for yourself." ■

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Be Your Own Boss (XDH102)

October 25, 9:00 am - 5:00 pm OR
October 26, 9:00 am - 5:00 pm; Fee: \$55.00

This workshop examines what it's really like to be your own boss and helps you to answer questions such as: Do I have what it takes to be an entrepreneur? Are the risks worth the rewards? How do I identify opportunities?

Business Opportunity Identification (XDH103)

November 1, 9:00 am - 5:00 pm; Fee \$55.00

Six hands-on exercises will guide you in generating new ideas and testing existing ones. Opportunity sources, trend analysis, critical mass opportunities, lateral thinking, and psychographics will be examined.

Buying A Business or Franchise (XDH104)

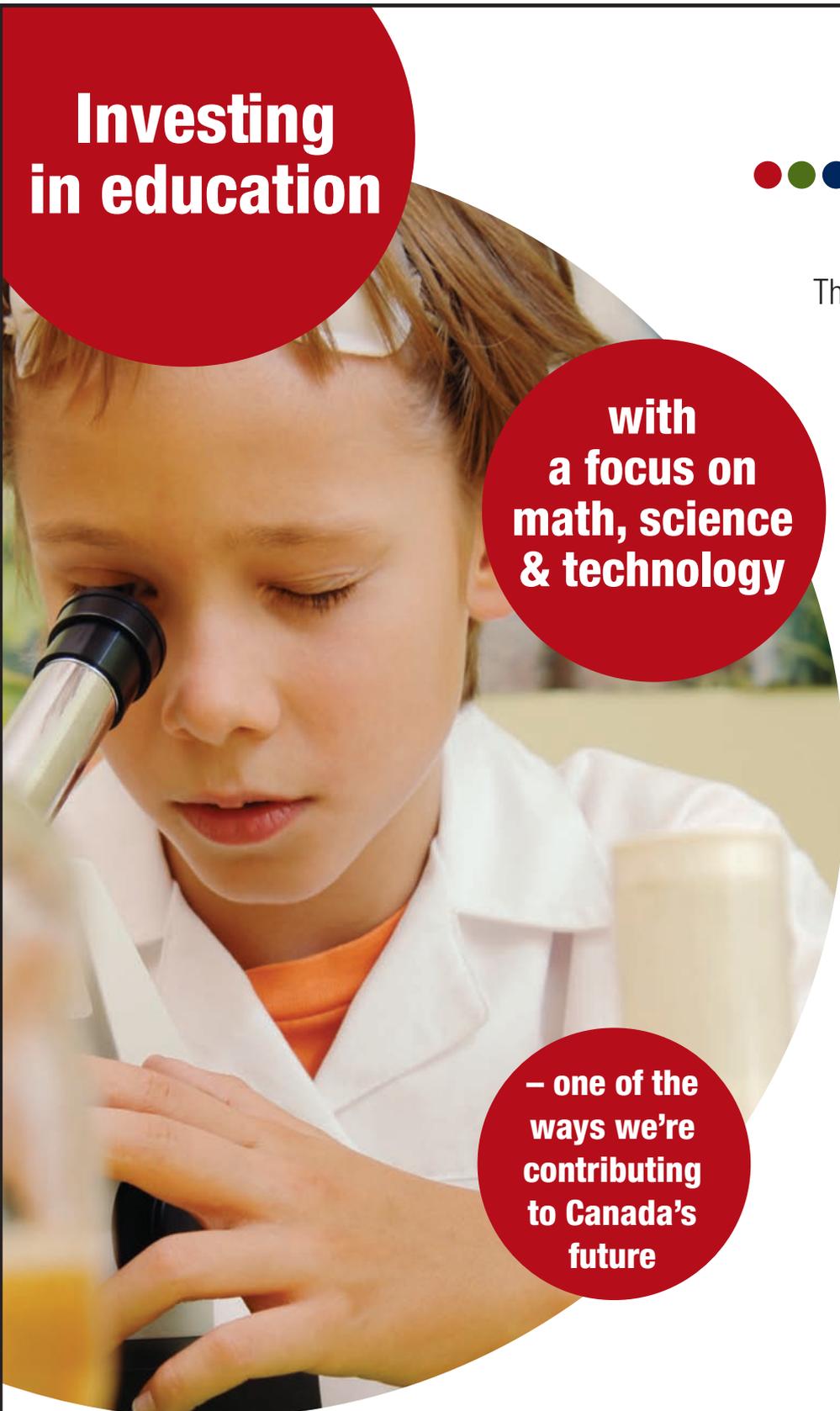
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