



PEOPLE TECHNOLOGY INNOVATION

V5.2 2012
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techlife

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CELEBRATE NAIT'S 50TH

BY SHARING YOUR
MEMORIES

P. 3

BOB MCLEOD TAKES
ON **ONE OF CANADA'S
TOUGHEST JOBS** –
PREMIER OF N.W.T.

YOUR PATH TO THE
**PERFECT CUP
OF COFFEE**

GOURMET FOOD TRUCKS

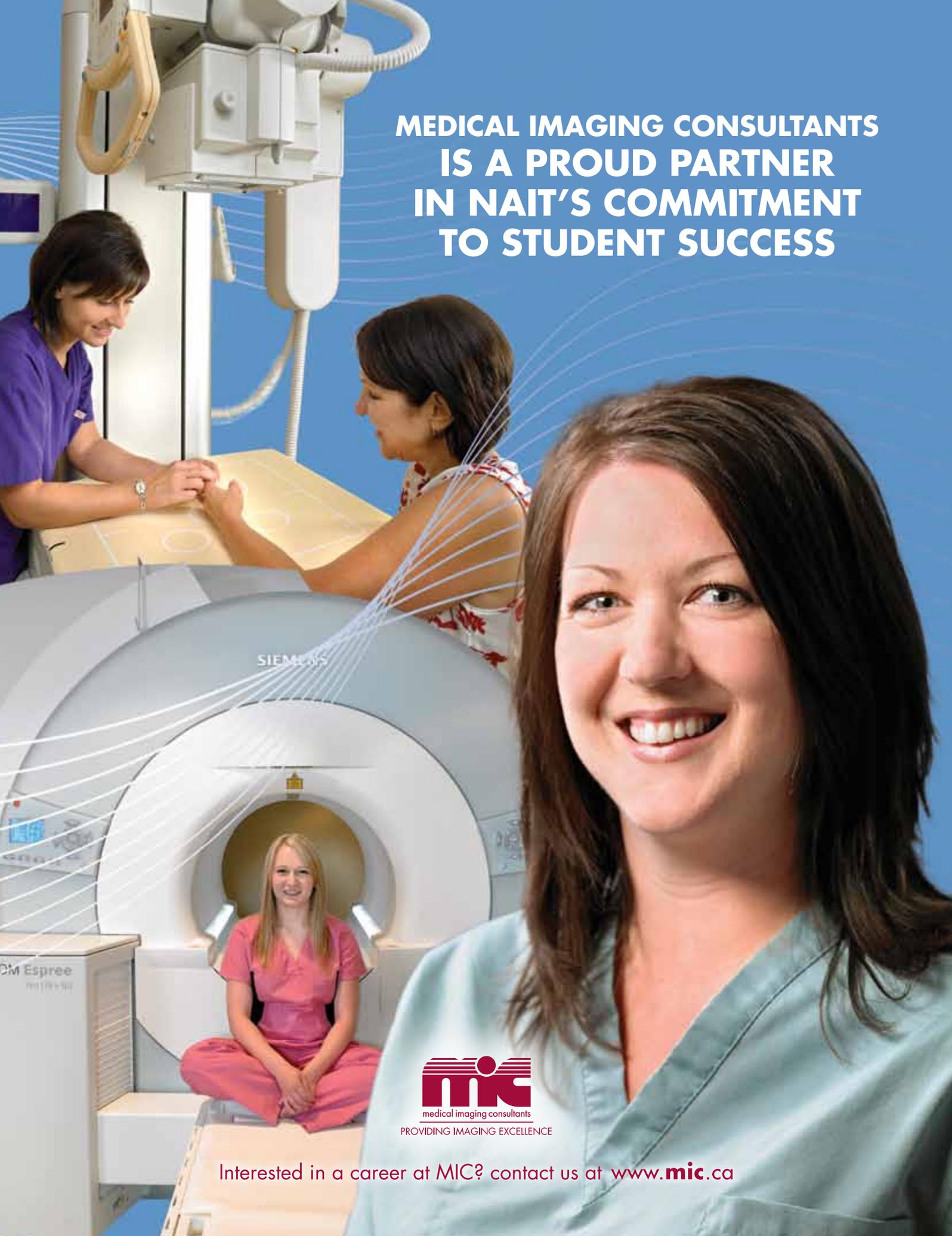
ROLL INTO
EDMONTON

WHY WE CAN'T
AVOID A LABOUR
SHORTAGE

DOES THIS MAN
HAVE A SOLUTION
FOR THE **OIL SANDS?**



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Help celebrate NAIT@50

To mark NAIT's 50th anniversary, *techlife* would like to share memories and stories from staff and alumni in a commemorative issue of the magazine this fall and online at techlifemag.ca. Here's one:

"If my memory serves me correctly, I believe the tuition fee when I registered in 1974 was \$83. My father gave me a cheque for \$150, which covered tuition and books. So \$300 got me into a lifelong career. What a deal!"

KIM STARKO

Dental Technology '76

Owner, Inter-Pro Dental Laboratory

Send us your memories - long or short, serious or fun - by June 15, 2012.

- By **email**: editor@techlifemag.ca
- At techlifemag.ca/nait-memories.htm (login through Facebook to add your stories or complete the form on the page)
- On **Twitter** (use the hashtag #NAIT50)
- By **mail**: Sherri Krastel, Editor, *techlife* magazine
11762 - 106 Street N.W. Edmonton, AB T5G 2R1

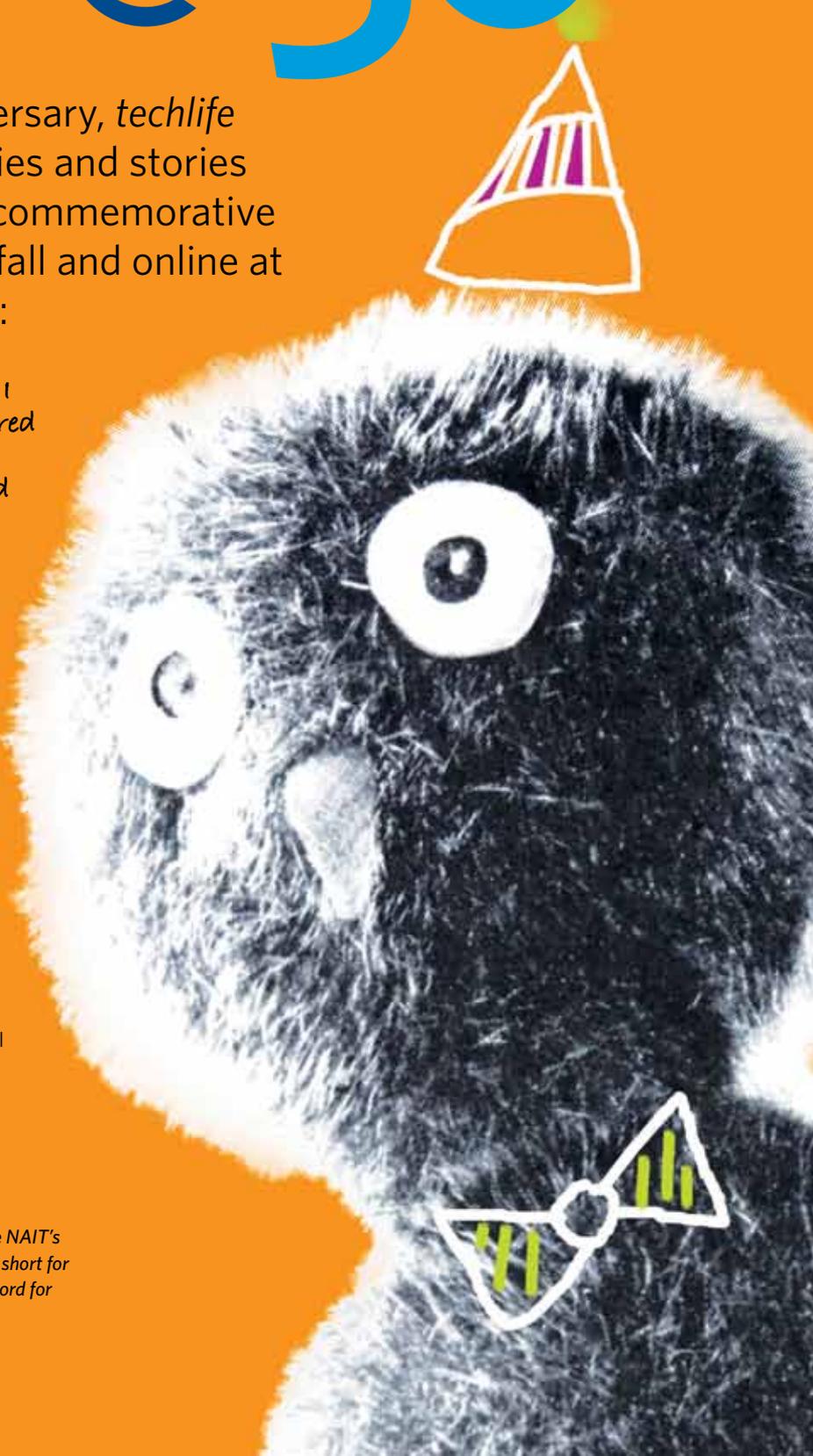
We are also looking for your photos. Mail or email photos you've taken. Originals will be returned. Digital images must be photographed or scanned at a high resolution setting.

WEB EXTRA

Learn more about the history of the Ook at

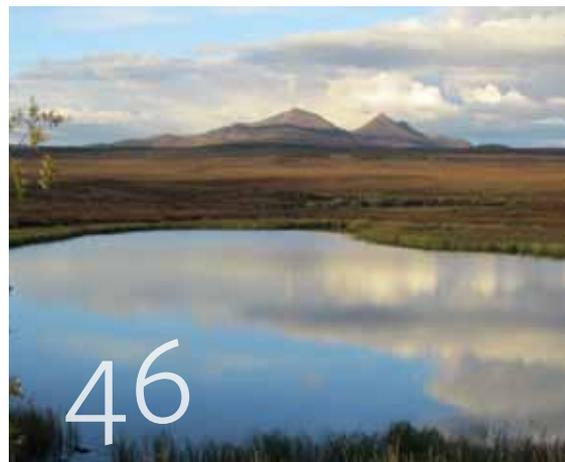
techlifemag.ca/ook.htm.

The Ook - the original pictured here - became NAIT's mascot in 1964. Ook is short for Ookpik, the Inuktitut word for snowy owl.





28



46

techlife → contents

ON THE COVER

- 3 **Celebrate NAIT's 50th by Sharing Your Memories**
- 15 **Why We Can't Avoid a Labour Shortage**
- 28 **Does This Man Have a Solution for the Oil Sands?**
- 38 **Bob McLeod Takes on One of Canada's Toughest Jobs – Premier of N.W.T.**
- 48 **Your Path to the Perfect Cup of Coffee**
- 52 **Gourmet Food Trucks Roll into Edmonton**



Cover photo
By Blaise van Malsen

TECHNOFILE

- 17 **How Would You Automate Your Life?**
House or car? We asked our readers. Here's how they voted
- 18 **Are You Being Served?**
How Mark Ryski is working to make retail – and your shopping experience – better
- 20 **K-911**
Advice for treating canines and felines at home, and for when to head to the vet
- 22 **A Sound Investment**
A builder of boutique loudspeakers sees his efforts amplified by the Hatch business competition prize
- 24 **History in 3D**
How the Internet is safeguarding endangered aspects of Canada's Métis past

- 25 **A Virtual Impression**
When it comes to interviews, is Skype as good as the real thing?
- 26 **Half a League Under the Sea**
A Prairie company's radical contribution to the world of deep-sea drilling

INNOVATE

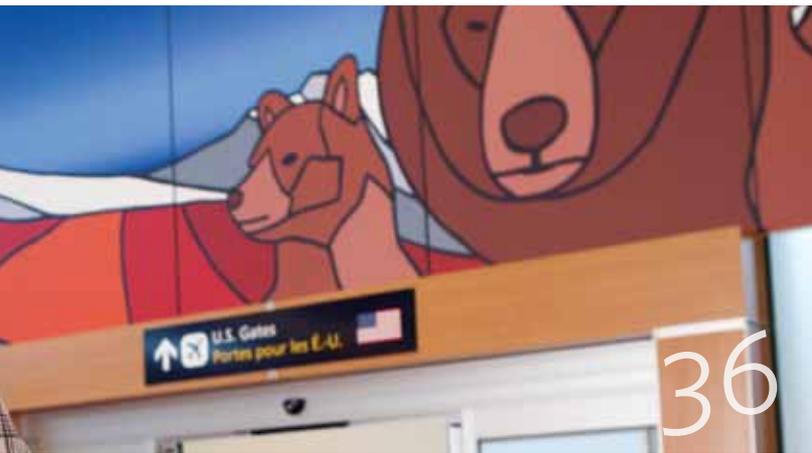
- 28 **Backing Big Oil**
Wade Bozak, and small businesses like his, could prove to be a major partner in the oil sands industry's quest to be cleaner
- 35 **Get Serious About Gaming**
Staff and students create virtual worlds to teach real industry skills

PEOPLE

- 36 **An Artistic Departure**
Jason Carter's high-flying career as an artist touches down at Edmonton International Airport
- 38 **Northern Composure**
Can Premier Bob McLeod lift the fortunes of his beloved but beleaguered Northwest Territories?
- 46 **The Long Way Around**
Warren Steen went to extraordinary lengths – thousands of kilometres, by river, road and ice – for a NAIT education

CULINAIT

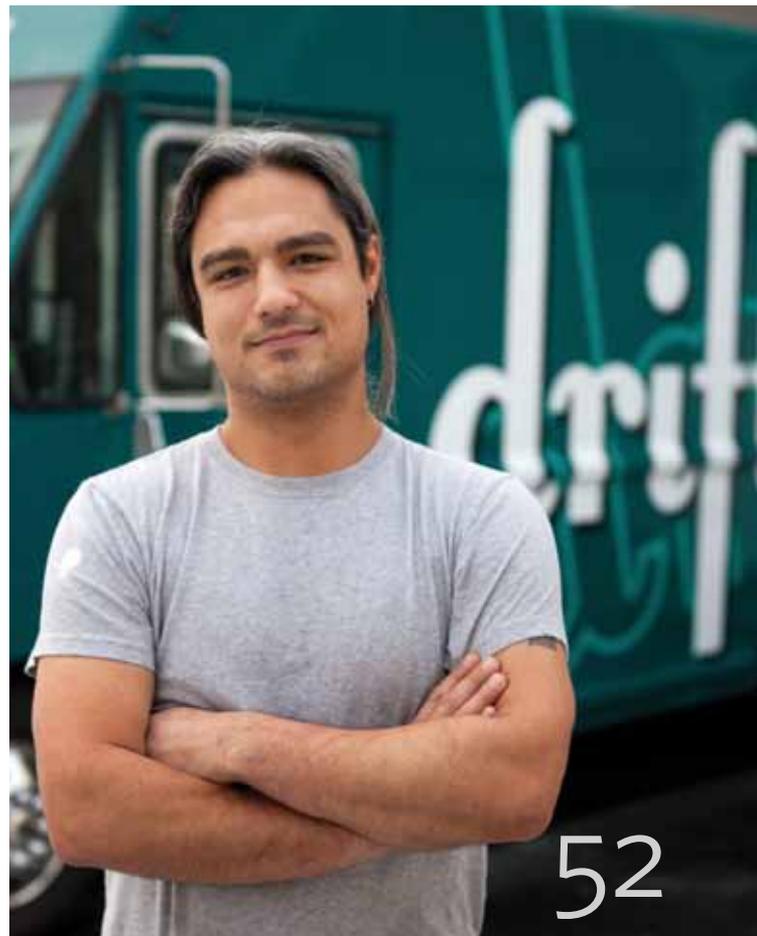
- 52 **Moveable Feasts**
Nevin Fenske helps reinvent roadside cuisine with the Drift food truck
- 56 **Recipe**
Drift's back bacon & brie sandwich



36



24



52

DEPARTMENTS

- | | |
|---|---|
| <p>6 Contributors</p> <p>7 Editor's Note</p> <p>8 Feedback</p> <p>9 Connections with the President</p> <p>10 Newsbytes
Recent news from the institute</p> <p>11 Preview
An inside look at emerging innovations</p> <p>13 Reading Room
NAIT staff members' science-fiction favourites</p> <p>15 3 Questions
Our experts ponder the looming labour shortage</p> <p>48 Ask an Expert
Take your love of coffee to new (caffeine) heights with roaster Dominic Ries</p> | <p>50 Postcard
Getting runner's high along the original marathon route in Greece</p> <p>59 Spaces
Only NAIT's tidiest room will do for the world's tiniest technology</p> <p>61 5 Ways to Get Involved With NAIT</p> <p>63 Job Description
Automotive legend Bernie Fedderly's life and career on the racing circuit</p> <p>65 Acclaim
Award-winning grads, staff and friends</p> <p>66 Rewind
An instructor reminisces about urban wildlife as an old building makes way for a new parkade</p> |
|---|---|

WHAT'S NEW AT TECHLIFEMAG.CA

Music Man

DJ Holger Petersen captures the voices of roots and blues in his new book *Talking Music*
techlifemag.ca/holger-petersen-talking-music.htm

Just Like Mom

Watch celeb chef Corbin Tomaszewski make chicken dumpling soup, with mom's help
techlifemag.ca/chicken-dumpling-soup.htm

Gardens in the Sky

NAIT research shows green roofs can work in the harshest of environments: urban Edmonton
techlifemag.ca/green-roof.htm

Game On

Programmer Justin James's homemade video game got him where he is today
techlifemag.ca/goobers-video-game.htm

Calling all Shutterbugs

How Greg Schurman creates award-winning artistic photographs
techlifemag.ca/greg-schurman.htm

Solar Aspirations

Clifton Lofthaug shines a light on the potential of photovoltaic technology
techlifemag.ca/solar-power.htm



Scan this QR code to connect to techlifemag.ca.

Accompanying some of this issue's stories are bar codes that connect you to our online content. All you need is a QR code reader; download one for free from your smartphone's app store. Then, use it to scan the codes found throughout the magazine.

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PAGE → 38

Pat Kane, whose work appears in our profile of Northwest Territories premier and alum Bob McLeod, specializes in photographing people, culture and lifestyle in Canada's Arctic. Staff photographer and photo editor for *Up Here* magazine, Kane has also shot for *Maclean's*, *The Globe and Mail* and *Canadian Business*. He's based in Yellowknife, N.W.T.



PAGE → 10, 11 & 22

Frank Landry likes to write compelling stories. He worked as a reporter at major newspapers in Alberta and Manitoba for more than a decade, specializing in political coverage, interviewing mayors, premiers and prime ministers. He came to NAIT in 2011 as a media relations specialist. In that role, and as a regular contributor to *techlife*, Landry has plenty of opportunities to talk to people who are making a difference and excelling in their fields. He loves sharing those stories.



PAGE → 36, 50 & 63

Don Trembath (Civil Engineering Technology '83) is an award-winning author of 12 young adult novels, including *The Tuesday Cafe*, *Rooster* and *The Bachelors*. Currently he is a Continuing Education instructor at the JR Shaw School of Business. In this issue, Trembath covered art, athletics and mechanics. "The three people I talked to impressed me with what they've done, and continue to do, since graduating - and they all credit NAIT for setting them off on the right foot," he says. His work has appeared in *Canadian Living*, *Today's Parent* and *The Edmonton Journal*.



PAGE → COVER, 48 & 52

In addition to handling other stories in this issue, **Andrea Yury** took particular pleasure in designing Brew the Perfect Cup of Joe. The smell of coffee is what gets *techlife's* associate art director out of bed - that and her love of working at NAIT. "We have a talented team of writers, designers and photographers," she says. "Now if only we had our own barista!" When not helping to tell inspiring NAIT stories, Yury can be found walking her dog in the river valley or smelling freshly roasted coffee beans at local farmers markets. She has a bachelor of design from Emily Carr University of Art and Design.



"NECESSITY IS THE MOTHER OF INVENTION."

- PLATO

AMIDST ALL THE ATTENTION and scrutiny given to the future of the Alberta oil sands, opportunity has emerged.

The challenge to develop and market a solution to address the industry's waste and secure the long-term environmental and economic sustainability of the massive resource is at the heart of our cover story (Backing Big Oil, p. 28), which looks at the role of small business in working with the big players.

Startup entrepreneur and inventor Wade Bozak (Civil Engineering Technology '93) believes the technology developed by his company RJ Oil Sands Inc. - which uses no chemicals, no heat and no power other than electricity to separate hydrocarbons from wastewater - could be a game-changer in the drive for innovation.

Further north, the sustainability of one of the country's least-populated jurisdictions weighs heavily on the mind of Bob McLeod (Management '74). As the new premier of Northwest Territories, McLeod has committed himself to the task of gaining control over the territory's natural resources - including the lucrative diamond mining industry - to bring independence and economic prosperity to the region's 44,000 residents (p. 38).

Sustainability, however, is not only about environmental and economic health; it is also about supporting the health and diversity of communities.

Retired senator Thelma Chalifoux is focused on the long-term future of Métis history and the almost-extinct Michif language. Chalifoux, an elder-in-residence at

the NAIT Encana Aboriginal Student Centre, is working with NAIT business incubator client Avatar Media to bring history to life with a virtual museum, which, when complete, will allow visitors to hear the Michif language spoken and examine documents and artifacts in 3D (p. 24).

At *techlifemag*, we celebrate 50 years of NAIT's role in helping sustain the Alberta economy. Since our first class began in 1962, we have graduated 172,000 students who have made many contributions in the province and beyond. Although we have shared many of these stories, we know there are many more we never hear about.

Our next issue, in the fall of 2012, will be dedicated to the past five decades, and we are looking for your memories and photos to include in these pages and online at techlifemag.ca - see page 3 for details on how you can contribute. We'll also announce the results of the search for our Top 50 Alumni. It's an impressive list.

Until then, enjoy your summer.

Sherri Krastel
Editor
editor@techlifemag.ca

TECHLIFE AWARDED

Canadian Council for the Advancement of Education

Grand Gold, Writing
(California Dreamin', V5.1)

Gold, Individual Illustrations
(Your House and the Rising Sun, V5.1)

Silver, Photography and Illustration
(Profile of a Master, V4.2)

Silver, Writing (Glenn Feltham's New Assignment, V4.2)

Bronze, Individual Illustrations
(Plug Your Ears, V4.2)

HERE'S WHAT YOU THINK ABOUT US

AFTER EACH ISSUE of *techlife*, we ask readers to tell us what they thought of the magazine by taking our readership survey. Following our last issue, 175 shared their thoughts. Here's what we heard.

- **95%** agreed *techlife* is a good source of information about NAIT activities and priorities
- **94%** agreed *techlife* makes them proud to be associated with NAIT
- **92%** agreed *techlife* makes them feel more connected to NAIT
- **87%** agreed *techlife* improves their opinion of NAIT

Of the articles we asked about, these were the five most-read in the 2011 fall issue, in descending order:

- The Local Food Challenge (p. 54)
- California Dreamin' (p. 40)
- Such Great Heights (p. 63)
- The Games People Play (p. 32)
- Nurture Your Nest Egg (p. 50)

Missed these stories? Find these articles and more online at techlifemag.ca.

TAKE OUR READERSHIP SURVEY



Scan this QR code to take our readership survey or visit techlifemag.ca/survey.htm.
Need a QR code reader? See p. 5.

WINNERS

Last issue, we asked readers to share their favourite holiday decorating tips at techlifemag.ca/holiday-decor.htm for a chance to win the plans to build a pair of wooden reindeer. The winner was **Caroline Walch**, a stock keeper with the NAIT Automotive Service Technician program.

We also asked readers to name the game developed by Bitshift Games (featured on p. 32) for a chance to win the books featured on p. 13. **Kelvin Bassett**, **Renita Olson** (Bachelor of Business Administration student, Accounting '10), **Natalya**

WE WANT TO HEAR FROM YOU

Tell us what you think about the stories you read in the magazine or at techlifemag.ca.

Here's how you can reach us:

- **Email:** editor@techlifemag.ca
- **techlifemag.ca** (comment online by logging in through Facebook)
- **Twitter:** @NAIT
- **Facebook:** www.nait.ca/facebook
- **Mail:** Sherri Krastel
Editor, *techlife* magazine
11762 – 106 St. N.W.
Edmonton, AB T5G 2R1

Published comments may be edited for length, grammar and clarity.

Brettle-Seghers and Roland Grombach correctly named the mobile game app *Super Punch*.

In December, techlifemag.ca asked readers to name Holger Petersen's (Radio and Television Arts '70) CKUA radio show *Natch'l Blues* for a chance to win his new book, *Talking Music*. The winner was **Bill Wickett**.



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**WEB EXTRA**

Watch Dr. Feltham's hands-on introduction to NAIT. Scan this QR code or visit www.nait.ca/project-president. Need a QR code reader? See p. 5.

THE NAIT WAY

IT'S HARD TO BELIEVE a year has passed since I became president and CEO of NAIT. I have enjoyed every minute of every day. What an amazing institution.

My introduction to NAIT was a truly hands-on experience. I visited 35 programs across four schools and took part in training in each one – I learned as our students learn. I extracted DNA from a banana, tried my hand at welding, anchored a newscast and much more. Overall, it was a nine-week dash through the vast diversity and depth of our programming. What better way could there be to get to know NAIT?

During that time, I discovered that NAIT is an outstanding polytechnic, with a sharp focus and a close relationship with industry that differentiates us from universities and colleges. And I discovered what we call the NAIT Way. You can see it in the passion of our students and staff members, and in the pride we take in the unique way we serve this province.

Now, as we celebrate our 50th anniversary – and our rich history of accomplishment – we're prepared to build on our proud heritage.

Over the past few months, we've come together to set the direction for the institute. This has involved our Board of Governors, our staff and students, and the external community, including alumni. Consultation

has been extensive, with town halls, surveys and engagement events that have involved roughly 2,500 participants.

So where is this direction pointing us? Over the next decade – and over our next 50 years – expect NAIT to be transformed. Our programs will evolve, our enrolment will grow, and our campus will expand. Regardless, we will remain true to ourselves and our past as a polytechnic. We will honour the NAIT Way. The future will bring new milestones. Our touchstone, however, will remain the same: we will be relevant and responsive to the needs of industry and business, and will be driven by our commitment to the province of Alberta.

Glenn Feltham, PhD
President and CEO
glennf@nait.ca



MANGIA WITH MASSIMO

THE MARVELLOUSLY MOUSTACHED Massimo Capra visited NAIT in March as the Hokanson Chef in Residence, sharing his talents and ebullience with the institute and local culinary community. Besides being an award-winning cookbook author, the Italian-born chef is a successful Toronto restaurateur and a fixture on the Food Network – making him “a great addition to this program,” says Perry Michetti, associate dean of the School of Hospitality and Culinary Arts. Established in 2009 with a \$1-million donation from John and Susan Hokanson, the annual program provides students and local professionals a rare opportunity to learn first-hand from the world’s best chefs.

— Scott Messenger



WEB EXTRA

Scan this QR code for coverage of Massimo Capra’s week as Hokanson Chef in Residence, including video and a recipe, or visit

techlifemag.ca/massimo-capra.htm.

Need a QR code reader? See p. 5.

NEW FACES IN BUSINESS

THE JR SHAW SCHOOL OF BUSINESS has a new dean and an expanded capacity for applied research.

Dr. Neil Fassina, dean, wants the school to be recognized for its premier student experience and connections to the community. “I believe strongly that business school curriculum needs to be innovative and relevant for our students and the community employing our graduates,” he says. Previously head of the Department of Business Administration at the University of Manitoba, Fassina holds a PhD in organizational behaviour and human resources management.

Applied research, meanwhile, gets a boost with the introduction of NAIT’s first-ever JR Shaw Applied Research Chair in Sustainable

Economic Development. Dr. Aarti Sharma brings her multinational background on sustainable development to this position. One of her research projects investigates how environmental, social and technological innovations undertaken by multinational corporations can help in the sustainable development of India. She is also engaging with the Alberta government and business agencies and initiating research on sustainable economic development.

As well, Dr. Krista Uggerslev has been appointed as an applied research fellow – another first for NAIT’s business school. Her research explores the factors behind Canada’s growing skilled labour shortage.

— Kathy Frazer

From left, Dr. Krista Uggerslev, Dr. Aarti Sharma and Dr. Neil Fassina.



TOP WORKPLACE

NAIT HAS BEEN NAMED one of Alberta’s Top 55 Employers for 2012.

The designation was based on a number of factors, including NAIT’s commitment to employee professional development, family life and retirement planning.

“I am proud of this recognition because it reflects what NAIT is, and what matters,” says

NAIT president and CEO Dr. Glenn Feltham. “NAIT is a truly outstanding workplace.”

Alberta’s Top Employers is an annual competition that recognizes employers that offer exceptional places to work. It’s organized by the editors of Canada’s Top 100 Employers. NAIT last made the top employers list in 2008.

— Frank Landry



BUILD AN ANDROID APP

WITH SMARTPHONES based on Google’s fast-rising Android operating system dominating global sales, NAIT is now training developers to build Android apps. Launched in March, the Android Developer

certificate is a first in Alberta. Students learn programming fundamentals, design strategies for mobile devices, Java and Android fundamentals and more, and by the end of the eight-course program will be able to

create apps for all types of Android devices. The introduction of the program comes one year after NAIT launched its popular Apple iPhone/iPad Developer certificate program.

— Kristen Vernon

AN INSIDE LOOK AT EMERGING INNOVATIONS AT NAIT

CRAFT CHEESES



OPPOSITE PAGE: MASSIMO CAPRA PHOTO SUPPLIED; PHOTO BY BLAISE VAN MALSEN
ILLUSTRATION BY ROD MICHALCHUK

SAY CHEESE! Artisanal cheese, that is.

While making cheese, including Gouda, brie and feta, has long been a small part of the Culinary Arts program, the acquisition of a 200-litre cheese vat means NAIT can expand its cheese-making curriculum. It's a move that positions the institute to become a leader in teaching the art of making artisanal cheeses, which are typically made in small batches with limited automation.

Instructor Alan Roote, who says there is a shortage of skilled cheese makers throughout the west, notes that the new equipment simplifies

parts of the cheese-making process. The vat was purchased with grants totaling \$60,000 from the Alberta Livestock and Meat Agency, Alberta Milk and novaNAIT - NAIT's centre for applied research and technology transfer.

Alberta Milk's Melinda Falkenberg-Poetz says NAIT is the only institute west of Manitoba to offer a cheese-making course. The program, she says, will help build Alberta's artisanal cheese market.

— Frank Landry

AVENUE BOOSTERS

SOON, ALBERTA AVENUE (118 AVENUE), one of Edmonton's most economically and socially troubled neighbourhoods, could be one of the city's most vibrant shopping and business districts, thanks to revitalization efforts that are breathing new life into the east-end community.

Now a NAIT student group has a plan to help carry that momentum forward.

Students in Free Enterprise NAIT - a business club that is part of a global network - is connecting the district's owners of small- and medium-sized businesses with the resources they need to continue to succeed. The project is called Live Up and includes workshops this spring. The focus of the sessions will be determined following community consultations, but could include help with hiring, store design, business planning, accounting, and even dealing with graffiti and prostitution.

Joachim Holtz, executive director of the Alberta Avenue Business Association, sees a lot of potential in the project, but says the critical first step will be getting buy-in from business owners. Ultimately, he says, arming these individuals with more knowledge could help their businesses grow.

— F.L.

SOLAR METER READER

EDMONTONIANS INTERESTED IN installing solar modules will soon have real-time information to help guide their decision. A new study on NAIT's Main Campus is investigating the technology's performance in a city with short winter days and often heavy snowfalls.

Since late March, with support from the City of Edmonton, which has committed \$25,000 to the project (matched by NAIT), and Howell Mayhew Engineering, NAIT's Alternative Energy Technology program has been

measuring electricity generated from six pairs of modules set at different angles, with just one of each pair being cleared of snow.

City of Edmonton project manager Barbara Daly sees the value of the data in its specificity to the region - and its accessibility. "The data will be available to anybody," says Daly, from the city's and NAIT's websites throughout the study, which will continue for five years, collecting data year-round.

— Fiona Bensler

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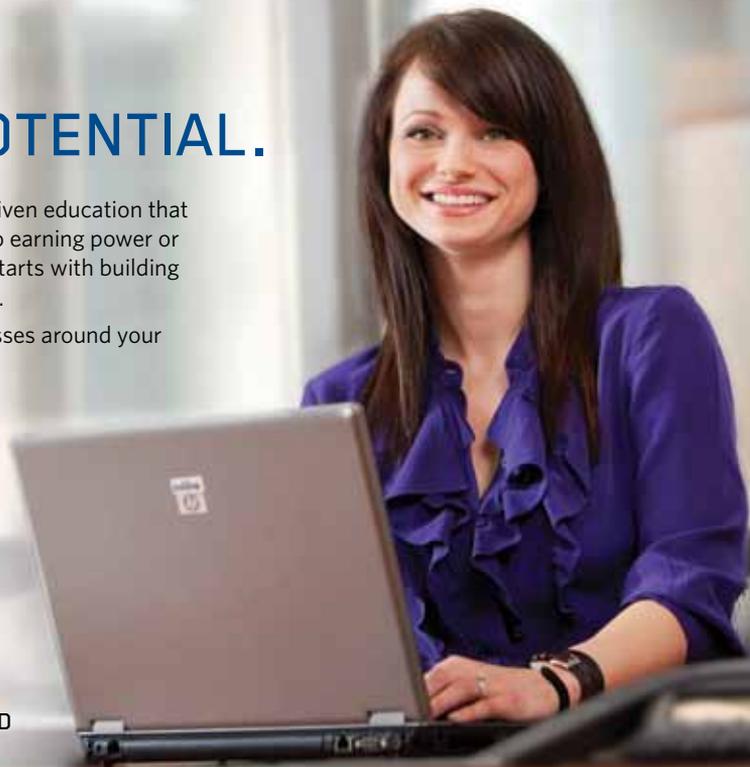
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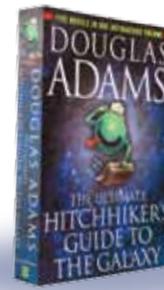
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MASTERPIECES



J. Michael Carrick
Electrician Instructor
recommends . . .

THE CHRYSALIDS
by John Wyndham

Written in 1955, *The Chrysalids* is an engaging, post-apocalyptic, coming-of-age story. Set in some distant future, the “Tribulations” has rendered Labrador one of the few remaining habitable portions of North America. With only two months of winter, horse and steam power supports subsistence agriculture. A form of Christian fundamentalism provides the sparsely distributed population with a framework for the acceptance or rejection of plant, animal and human life that continues to be wrought by the after-effects of the “Tribulations.” Against this backdrop, Wyndham explores the question of what it is that defines our humanity.

[Carrick's top suggestion is the five-novel series *Canopus in Argos: Archives* by Nobel Prize-winning author Doris Lessing. “It's the richest description of the human experience I've read,” he says. But given that you're not likely to find it in a bookstore or library, we asked for a second recommendation.—Ed.]

James Deslauriers
Technical Help Desk Analyst
recommends . . .

ENDER'S GAME AND SPEAKER FOR THE DEAD
by Orson Scott Card

There are so many good reads (*Snow Crash*, *Neuromancer*, *Foundation*, *The Andromeda Strain*, *Dune*, *Fahrenheit 451* and anything by Philip K. Dick), but if I could only pick one, well, it would actually be two – *Ender's Game* and *Speaker for the Dead*, the first two books in the Ender series.

The series starts with humanity fighting an alien race with government-bred child geniuses trained as soldiers, including Ender Wiggin, raising issues around child psychology, warfare, politics, morality and xenocide. It continues in the more serious and philosophical *Speaker for the Dead* with Ender, now the *Speaker for the Dead*, travelling the universe to speak the truth about the lives of the recently deceased.

There's a reason why Card won a Nebula Award, given by the Science Fiction and Fantasy Writers of America, and a Hugo Award, given by the World Science Fiction Society, for both these books.

Dr. James Gospodyn
Associate Chair of Nanotechnology
Systems
recommends . . .

THE HITCHHIKER'S GUIDE TO THE GALAXY SERIES
by Douglas Adams

The books follow a regular Brit named Arthur Dent, who unwillingly ends up on an interstellar adventure with a bizarre cast of characters after he escapes a doomed Earth, which was destroyed to make way for a galactic freeway.

The series is rich in dry British humour, and I laughed out loud on more than one occasion. It's a nice light read that captures the fun and imagination of science fiction. A quote I remember vividly: “It is a mistake to think you can solve any major problems just with potatoes.”



WEB EXTRA

Scan this QR code or visit techlifemag.ca/sci-fi.htm to add your suggested sci-fi readings. Need a QR code reader? See p. 5.

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THE LABOUR SHORTAGE

With a recent report from the Government of Alberta predicting a shortfall of roughly 114,000 skilled workers by 2021, we asked three leaders about the view from the trenches in the ongoing war for talent.

WEB EXTRA

What can we do about the shortage? Find out Dr. Krista Uggerslev's thoughts in an extended interview at techlifemag.ca/labour-shortage.htm.

HOW WOULD YOU DESCRIBE THE IMPACT OF A LABOUR SHORTAGE ON YOUR WORK?

DO YOU BELIEVE A LABOUR SHORTAGE IS AVOIDABLE?

WHY?

Naseem Bashir (Electrical Engineering Technology '88)
President, Williams Engineering Canada Inc.



- It's restricting our ability to grow. And growth is everything in business.
- No. Not in Alberta, anyway.
- The pool of workers just isn't large enough. Organizations are firing on all cylinders. A lot of that is driven by the oil sands industry and oil and gas in general. At the same time, we're not leveraging the available workforce. There's an ongoing conversation about not utilizing aboriginal people as best we can and also about underemployed women that - with the right things in place, whether it's childcare or extended school-hour care - could be doing more productive and satisfying things than working in retail for minimum wage. And then there are immigrating people who are underemployed as well.

Bill Peterman, Vice President of Employee Relations, Leducor



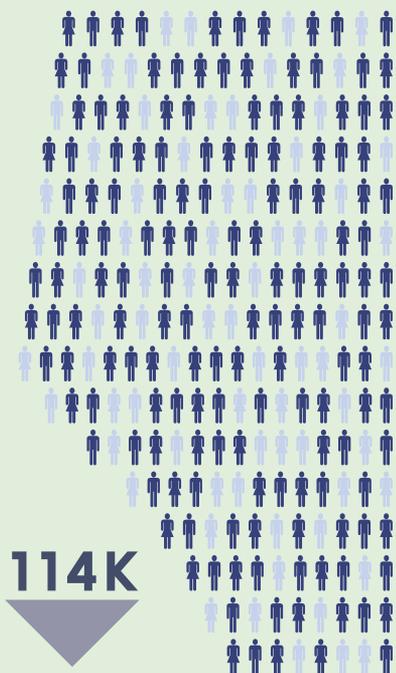
- With a labour shortage our ability to complete our existing projects and take on new work becomes much harder. There are currently not enough people available to fill our open positions as it is. A labour shortage also places a greater demand on our recruiting team and our overall operations. On the upside, this shortfall is a huge opportunity for new graduates, trainees and people looking to change their career path.
- I don't believe a labour shortage is avoidable in the short term.
- Currently, there are so many projects ramping up in Western Canada, with more to come in the next few years. We're already feeling the effects due to the large amount of retirees.

Dr. Krista Uggerslev, Applied Research Fellow
JR Shaw School of Business



- It has set the trajectory of my work. I have always been a recruitment and retention researcher. But the shortage is helping to focus my efforts towards what we can do to recruit people to our city, our province and to this country - and then retain them.
- No.
- We have the silver wave retiring, fewer youth, lower than replacement-level birth rates and slowed growth in the size of our working-age population. Within Alberta specifically, we have massive economic expansion. A lot of it is driven by the oil and gas sector, but a cascading effect broadens out from that. As the price of oil and gas goes up, those companies have more money. They expand. With that, they need more office buildings and work sites. You need construction workers to build those. They need places to live, so we need houses. They have disposable income, so now we need additional services and we need people to offer those services. As we do well in one area, it really ripples out into others.

PHOTOS BY NAIT STAFF PHOTOGRAPHERS



Projected labour market increase by 2021 (workers): 607,000

Workers expected to join workforce by 2021: 492,000

Average annual growth rate (GDP): 3.1%

Source: Alberta's Occupational Demand and Supply Outlook 2011-2021, Government of Alberta

DR. AARTI SHARMA
JR Shaw Applied
Research Chair
in Sustainable
Economic
Development



STRIKING A BALANCE

SUSTAINABLE ECONOMIC DEVELOPMENT: it's a complex balance between business profitability, environmental health and the needs of a growing, diverse society.

It's a topic of particular interest to Dr. Aarti Sharma, the JR Shaw Applied Research Chair in Sustainable Economic Development. In collaboration with NAIT faculty, local organizations and businesses across the region, Dr. Sharma will advance understanding of sustainability principles and facilitate strategies that put these principles into action.

Contact Dr. Sharma to discuss your ideas:
Phone: 780.491.3971 | Email: aartis@nait.ca



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BBA: THE DEGREE THAT DELIVERS

ALEXANDRIA MAH WORKS FULL-TIME as a Revenue Canada auditor, plays intercollegiate soccer for the NAIT Oaks, and is pursuing both a degree and a CGA credential. She needed a degree program that delivered flexibility and results - and found it in NAIT's Bachelor of Business Administration.

The BBA builds on Alexandria's previous JR Shaw School of Business diploma, allowing her to finish quickly and work toward her accounting designation at the same time. And the choice of full-time, part-time and online course options means she can tailor her studies to fit her busy schedule.

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HOW WOULD YOU AUTOMATE YOUR LIFE? [GADGETS]

Earlier this year, techlifemag.ca asked those of you who visited the site what you'd rather automate – your home or your car. The majority of you, it turns out, would be happy to live in a *Jetsons*-like smart home, but you aren't ready to be a passenger in a self-driving car. Here's how you voted.

— Kristen Vernon



84%



16%

MOST OF YOU WOULD CHOOSE some level of automation in your dream home. A sign, perhaps, that advances in technology – and the many options offered by smart home, technology, cable, home theatre and home security companies – are moving home automation out of the realm of the do-it-yourselfer and the über-rich and into the mainstream.

You want to automate your lights, thermostat, blinds, security and doors, appliances, audio and video. You want these devices to communicate with one another. And you want control from your computer, smartphone or tablet.

In place of an alarm clock, you want your bedroom drapes to open and music to fill your room. As you leave for work, you'd like the lights and radio to shut off and the temperature in the house to drop. You want to open your door remotely for your children. The possibilities go on – and how you automate your home is up to you.

By 2016, you might well be one of the 10 million homeowners worldwide, up from 513,000 in 2010, who ABI Research forecasts will have a home automation service provided by a home security company.

PERHAPS IT'S THE LACK OF OPTIONS on the road today or maybe you just like being in control or enjoy being behind the wheel, but the self-driving (or self-parking) car doesn't top the automation must-have list for many.

That said, 16 per cent of you want a car that does at least some of the work for you. You've seen footage of Google's driverless cars, which as of March 2011 had travelled more than 225,000 kilometres using cameras, radar sensors, a laser range finder and maps to navigate. And then there are the self-driving concept cars, most recently Toyota's Fun Vii and Nissan's Pivo 3, which were on display at the Tokyo Motor Show in December. While you're eager for a driverless car to show up at a dealership near you, there's no word on when that might happen. (Besides, the only jurisdiction to expressly sanction driverless cars is the state of Nevada.)

But that doesn't mean there aren't options for making your ride more automated – and you're ready to consider them. Like the Volvo XC60, which will automatically brake to avoid a collision in slow moving city traffic. Or Ford's Active Park Assist, which will allow your vehicle to parallel park itself (with little input from you). After all, the companies behind these technologies want to help reduce traffic accident fatalities – and that's a mission you can get behind.



WEB EXTRA

Scan this QR code or visit

techlifemag.ca/automation-poll.htm

to continue the debate online.

Need a QR code reader? See p. 5.



Above, Mark Ryski, founder and CEO of HeadCount, an Edmonton-based company that monitors customer traffic for retail stores.

ARE YOU BEING SERVED?



HAS THIS HAPPENED TO YOU? You visit a store looking for something specific, can't find it, search for staff to help, can't find anyone, so you leave unsatisfied. That scenario partly explains Mark Ryski's success with HeadCount, a company that quantifies customer service to allow retailers to capitalize on traffic. Last summer the CEO (Marketing '88) released his second book on the subject, *Conversion: The Last Great Retail Metric*.

While his first, 2005's *When Retail Customers Count*, firmly staked the Edmonton-based company's claim on the field of in-store data gathering and analysis, Ryski's latest tailors the message to C-suite execs of the world's biggest retailers. Since landing heavyweights including London Drugs, Jysk and HMV Canada, Ryski's customer counting technology has positioned HeadCount as an international concern - and as the authority on the science that could improve the retail experience in your favourite stores.

— Scott Messenger

WHAT IS CONVERSION AND WHY IS IT IMPORTANT TO RETAILERS?

MARK RYSKI: Conversion measures the number of people that buy compared to those that visit. Without understanding conversion, a retailer can understand that sales are going up or down, but they don't know relative to what.

WHAT CAN RETAILERS DO WITH THIS DATA?

MR: The very first thing is align staff resources to traffic [patterns]. Number 2 is setting targets. It's not a matter of tackling people in the aisle . . . it's just a matter of knowing that every person who comes in the store counts.

I CAN'T THINK OF MANY OTHER CEOS WHO WRITE A BOOK AS A MARKETING STRATEGY.

MR: You have to be pretty delusional or desperate. [laughs] It wasn't just a marketing strategy. It was to acquire clients and engage at the C-level, but [it was also meant] as a guide to go down the organization . . . ultimately to give store managers a way to understand this. The only downside is you have to actually write a book. [laughs] It is a painful process.

WHERE DID THE COVER CONCEPT COME FROM?

MR: The "last great retail metric" was the theme that we played on – so what's "last?" What's "great?" We got to this notion of a great work of art and [wondered] how that ties into shopping? A group of designers came up with Michelangelo's *David* holding a shopping bag.

I loved it. [But] the first interpretation was full monty. I said, "I'm going to tell you for free that the CEO of Lowe's Home Improvement in Mooresville, North Carolina is not going to get that."

WHAT ARE CURRENT METRICS SAYING ABOUT THE INDUSTRY?

MR: Generally, retailers are having a hard time getting shoppers into their stores. Conversion rates aren't really going through the roof either. Retailers are doing OK, but . . . there's still a certain amount of fragility in the economy.

AND WHAT DO THEY SAY ABOUT THE IMPORTANCE OF CUSTOMER SERVICE?

MR: It's never been more important. The challenge is that nobody really knows what it means anymore. . . . I notice a big difference in the customer service experience in the United States versus Canada. Often, it tends to be better in the U.S. It could have something to do with assertiveness to facilitate the sale.

WHAT KEEPS YOU ENGAGED WITH THIS?

MR: It's a fundamental belief in what these basic metrics can mean to a company and [how they can] help it transform. When I see so many retailers that don't do this, I just get excited about the possibility.

THINK YOU'LL WRITE ANOTHER BOOK ON THIS?

MR: I've outlined my third one. It's like some form of addiction!

BTech: THE DEGREE WITH DIRECTION

CHRIS KIRSTIUK ENJOYS THE CHALLENGE of a demanding work environment, where he manages projects, plans and people. His Bachelor of Technology in Technology Management degree, earned just two years after his diploma in Civil Engineering Technology, gives him the combination of technical expertise, managerial skills and confidence he needs to be effective on the job.

Chris earned his BTech degree via evening and online classes, so his studies enhanced, rather than interrupted, his career.

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[HOW TO]

K-911

It's inevitable. Maybe Fido follows a stick into the bushes and comes out with an itch. Or perhaps Fluffy discovers the garbage – and ingests its questionable contents. At some point your pet will need the assistance of opposable thumbs. Dr. Jocelyn Forseille, chair of NAIT's Animal Health Technology program, explains which ailments can be tackled at home, and what should be left to the experts. (Whenever in doubt, of course, go with the latter.)

— Lindsey Norris



DIGESTIVE TROUBLES

DIY: "It's fairly common for pets to get into things they shouldn't eat," says Dr. Jocelyn Forseille. "If an animal is vomiting or has diarrhea but is alert and not acting ill, take away food and water for six hours and monitor them. If the symptoms stop, you can slowly reintroduce water and food." (This approach is not recommended for puppies or kittens.)

See the vet: If a pet is repeatedly retching or has a distended stomach, that may indicate a twisted stomach (known as torsion).

Also, if an animal is straining to urinate, they need a vet.

EXPOSURE TO THE ELEMENTS

DIY: In Alberta, frostbite can be a concern for animals (they may lose the tips of their ears to the problem). Here, the only home remedy is a proactive one: when it's cold, bring your animals indoors. At the other end of the thermostat, if you suspect an animal is in the early stages of overheating – if it's just panting heavily – try cooling the animal with a hose or cold towel.

See the vet: If an animal is not only panting heavily, but is distracted and doesn't respond to its name, and is unable to stand, take it to a clinic immediately. "You usually know from early signs: the animal is panting, they've been in a hot environment, and they will go on to collapse pretty quickly," Forseille says.

EYE IRRITATION

DIY: Many people allow their animals to hang their heads out of car windows to enjoy the breeze. However, this can lead to an eye irritation. If your pet begins to squint or rub at its eye, you can try flushing it with saline solution from the drug store.

See the vet: If the animal continues to squint after the eye is flushed, it's time to see a vet. "You don't want to mess around because they could lose sight in the eye," Forseille says.

MINOR WOUNDS

DIY: Many minor cuts and scrapes can be handled at home with disinfectant soap, such as chlorhexidine or Betadine, and sterile gauze bandages.

See the vet: If you apply pressure to a wound and it doesn't stop bleeding within five minutes, seek professional help.

ALLERGIES

DIY: Forseille says that for people, allergies tend to manifest in the respiratory system. For dogs and cats, allergies are more likely to appear as a skin issue. So if your pet develops an itchy rash, try applying a cold compress or calamine lotion.

See the vet: Most over-the-counter medications are not very potent, so home measures may not relieve your pet's discomfort.

BE PREPARED



In addition to gauze and rubbing alcohol, here are a few things, all available at local drug or, in some cases, pet stores, to round out a well-stocked first aid kit:

- Saline solution for contact lenses to flush wounds or eyes
- Styptic powder, a clotting agent that's useful if you cut a toenail too short
- Kaopectate, a chalky liquid that coats the stomach and can help reduce vomiting and diarrhea
- Syringes to give water orally or flush a wound
- Pantyhose, which can be used as a tourniquet or to muzzle an animal that is in pain and doesn't want to be picked up
- Gravol, for motion sickness: 25 mg for small dogs, 50 mg for large dogs, 15 mg for cats. May be repeated every eight hours

A SOUND INVESTMENT

JAMES OSUALDINI built his first speaker in high school shop class after reading a book called *The Audiophile Loudspeaker Anyone Can Build*. Today, he's the 28-year-old president and CEO of Adsum Audio, which manufactures and distributes high-quality loudspeakers.

"We combine high-end parts with unique designs," he says. The result is speakers that are "not only amazing to listen to, but also great to look at."

For his efforts, Osualdini's company won NAIT's third annual Hatch business plan competition in February. Open to students and recent graduates, the competition is run jointly by NAIT, the business club Students in Free Enterprise NAIT and the Youth Technopreneurship Program at Alberta Innovates - Technology Futures, part of the Government of Alberta's research and innovation system.

The prize includes \$20,000 to help Adsum Audio further its business plan, as well as one year of office space in NAIT business incubator the Duncan McNeill Centre for Innovation, with full access to the facility's amenities and experts.

"That's the biggest thing: being able to work with these people," says Osualdini, who graduated from NAIT's Electronics Engineering Technology program in 2011. "They can guide us in the right direction and tell us what to do and what not to do. That's invaluable."



Adsum Audio president and CEO James Osualdini shows Kirk Rockwell, a director at Alberta Innovates - Technology Futures, the company's boutique loudspeakers. Adsum is the most recent Hatch prize winner.

The company currently has two models: The Detonator, a cube-like bookshelf unit, and The Ivan, a powered sub-woofer. A pair of Detonators starts at about \$750.

Dea Emberg, NAIT research officer for student projects, says next steps for the company include ramping up marketing efforts and production. Adsum Audio plans to sell units through its website, adsumaudio.com, and in select audio stores.

— Frank Landry

PHOTO BY JOHN BOOK



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HISTORY



Above right, elder-in-residence and retired senator Thelma Chalifoux founded the Michif Cultural and Resource Institute; left, artifacts from the Michif Cultural and Resource Institute.



A NEW VIRTUAL MUSEUM will help preserve Métis history and the nearly extinct Michif language.

The St. Albert-based Michif Cultural and Resource Institute is working with NAIT and NAIT business incubator client Avatar Media to build this unique resource. With the confirmation of the first round of funding – \$51,000 from NAIT’s product development program – work has begun on the online museum.

“We’re the best kept secret in the country. The people of St. Albert have no idea of the fantastic secrets that we keep [at the Michif institute],” says Thelma Chalifoux, who founded the institute in 1991. Chalifoux, a retired senator, was the first Métis woman in Canada’s Senate, and is an elder-in-residence at NAIT’s Encana Aboriginal Student Centre.

The virtual museum will contain artifacts and documents from the institute, which will be captured in 3D. The materials will be accessible to students and researchers all over the world interested in studying the Michif language and Métis culture.

IN 3D



PHOTOS BY JASON NESS

With Chalifoux as their guide, visitors will be able to enter the rooms of the museum, view historical and cultural objects in 3D and rotate and examine them using a mouse or touchpad.

An important feature of the museum will be the oral histories shared by Michif speakers. Michif, the language of the Métis, has been classified as critically endangered by the United Nations Educational, Scientific and Cultural Organization, meaning the youngest speakers are grandparents or older, who speak the language only partially and infrequently.

"NAIT and Avatar Media will be bringing Canadian history to life through this virtual museum," says Chalifoux. "It's a history that is so rich and so interesting."

— Fiona Bensler

A VIRTUAL IMPRESSION

THE OLD ADAGE, You never get a second chance to make a first impression, is rarely truer than in an interview.

So, if you can't participate in a face-to-face interview, would using Skype's online video calling put you at a disadvantage? That's the question NAIT researchers set out to answer.

The School of Health Sciences currently uses multiple mini-interviews in which prospective students participate in 10 short in-person interviews designed to find out what kind of person they are. The interviews measure attributes including ethics and communication skills.

The company behind the ProFitHR multiple mini-interview format, Advanced Psychometrics for Transitions Inc. based at McMaster's Innovation Park in Hamilton, Ont., asked NAIT researchers to compare the results of interviews done using Skype with those done in person.

"Our programs attract candidates from across the country," says Heather Gray, co-researcher and chair of the Diagnostic Laboratory and Medical Transcription programs. "For many, a trip to Edmonton for the mandatory interview

poses financial and logistical problems."

With support from the Alberta Rural Development Network, *novaNAIT*, NAIT's School of Information Communication and Engineering Technologies, and Advanced Psychometrics for Transitions Inc., a study was designed using 23 students from the School of Health Sciences. Each was interviewed using both the standard face-to-face format and Skype.

The results showed no significant difference in the average scores between the Skype and in-person interviews. Before the school starts using Skype in actual interviews, however, more research is needed to answer questions around how technical difficulties, such as slow transmission and lost calls, would impact scores.

"There's great potential in our findings," says Dr. Randy Dreger, principle researcher and instructor in the Personal Fitness Trainer program. "This gives us a strong indication we can move forward and start to look at Skype in an applied setting."

— Ruth Juliebo

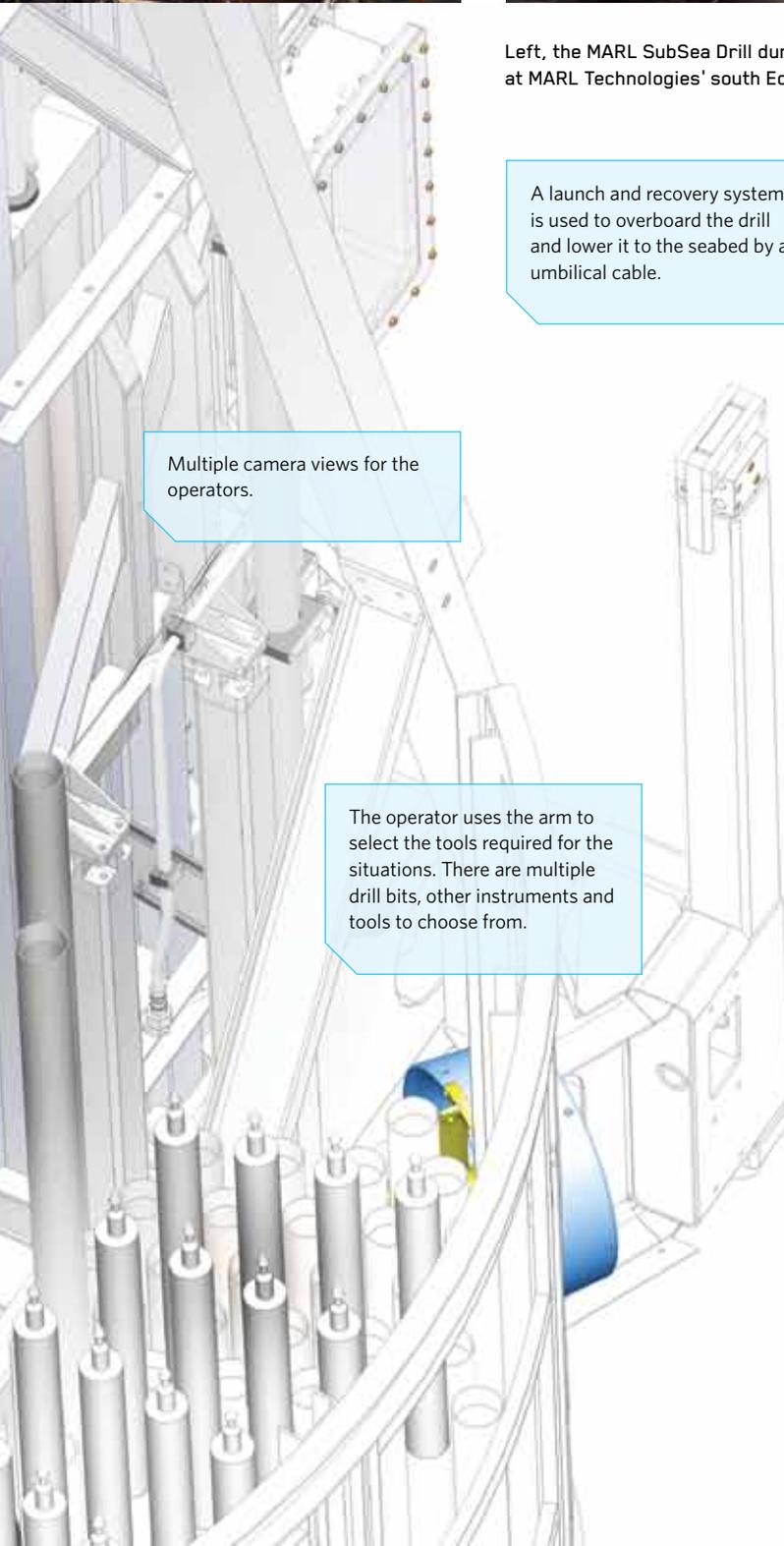
HALF A LEAGUE UNDER THE SEA

The MARL SubSea Drill is five metres long, 3.8 metres wide, seven metres tall, and has a certified loaded weight rating of 9,300 kilograms. It can be used at depths as great as 3,000 metres and can drill 150 metres into the seabed.

The remote-control handling arm is highly manoeuvrable with precise dexterity and pinpoint control. The arm is key to the SubSea's efficient operation.



Left, the MARL SubSea Drill during testing at Jarvis Inlet, B.C.; middle, the drill was designed and fabricated at MARL Technologies' south Edmonton shop; right, production manager Mark Gurnett.



A launch and recovery system is used to overboard the drill and lower it to the seabed by an umbilical cable.

Multiple camera views for the operators.

The operator uses the arm to select the tools required for the situations. There are multiple drill bits, other instruments and tools to choose from.

TWELVE HUNDRED KILOMETRES from the nearest ocean, at the MARL Technologies Inc. machine and fabrication shop in a south Edmonton industrial park, Mark Gurnett (Machinist '01, Mechanical Engineering Technology '03) and a team of machinists, engineers, drillers and fabricators built a drill to take core samples 3,000 metres below sea level.

Used mainly for underwater mineral and geotechnical exploration, the drill can also be used for oceanographic research. The MARL SubSea Drill is lowered to the ocean floor over the side of a research vessel like a giant fishing hook, requiring a smaller crew and making it more portable and easier to deploy than a conventional deepwater drill ship.

Made mostly of aluminum to resist rust, the drill can withstand water pressure 300 times greater than that of sea level. It took Gurnett (the production manager) and 14 other employees of MARL Technologies three years to design and build.

Gurnett says that making things simple is the hardest part of his job. "The design is so integrated into itself, if you change one thing, everything changes."

A first for MARL Technologies, the drill was built for American client Gregg Marine Inc., which selected the Edmonton shop for the job based on its success on several dry-land drilling projects with sister-company Gregg Drilling and Testing Inc.

"We needed a piece of equipment that would first and foremost be a high-capacity geotechnical drill, albeit one that could work in over 3,000 metres of water," says Chuck Drake, director of offshore systems at Gregg Marine.

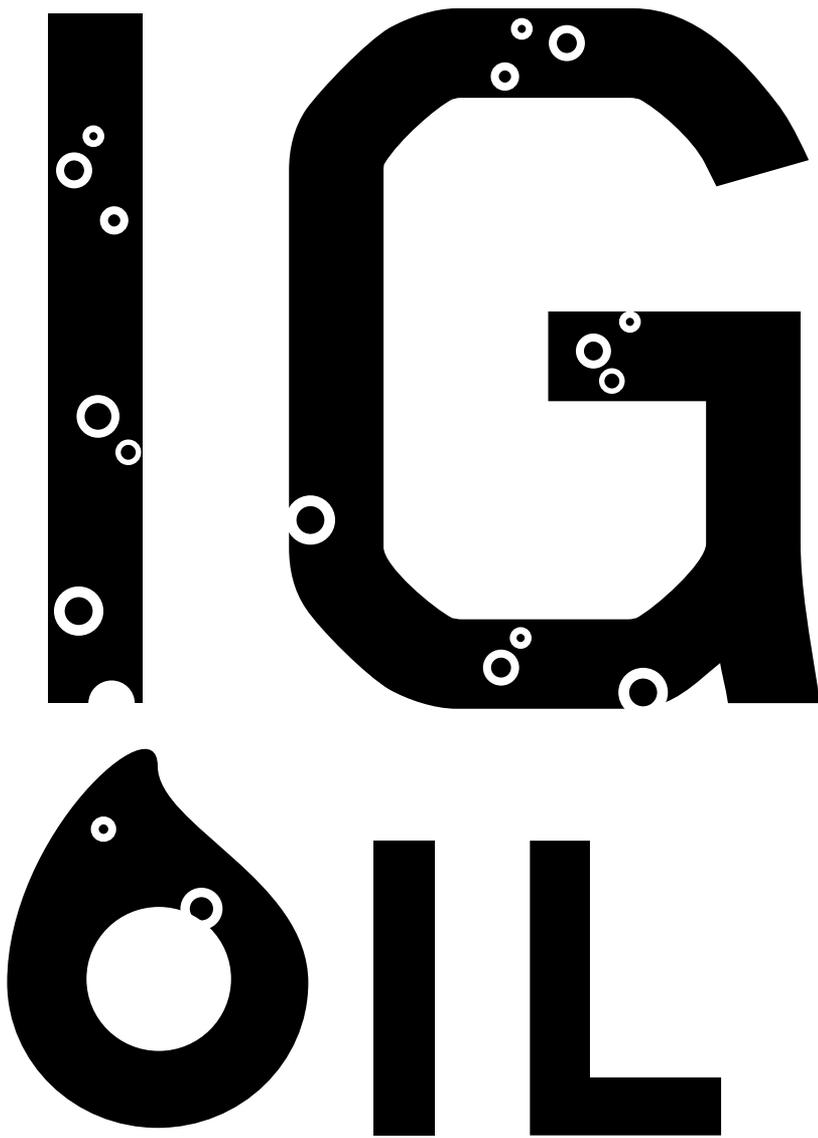
The drill was tested at Jarvis Inlet, B.C., before it was shipped last fall to the Indian Ocean off the west coast of Australia, where it is currently being used in the offshore oil and gas sector. Engineers will use the core samples obtained by the drill to ensure the subsea structures they design for use on the seabed stay put.

— Sherri Krastel

BACKING

STORY BY
SCOTT MESSENGER
PHOTOS BY
BLAISE VAN MALSEN

Wade Bozak, vice president of RJ Oil Sands Inc., with bitumen-free tailings, a product of technology he designed.



Whether Alberta can continue to meet the world's energy needs isn't the question. It's whether it can do so sustainably - environmentally and economically. Are the inventors and innovators of the province's small businesses part of the answer?



Above, Alberta's oil sands have produced approximately 840 million cubic metres of tailings; centre, Wade Bozak's phase separator renders oil producers' waste streams, including tailings, into constituent parts, including sand (top) and bitumen (in the beaker), a tar-like substance that can be diluted to liquid form (bottom); far right, Troy Lupul, entrepreneur and venture capitalist, sees great opportunity for small businesses with technologies to help big oil companies improve economic and environmental sustainability.

IN A WORKSHOP the size of a small-town hockey rink, just west of Edmonton, Wade Bozak grabs a small beaker from a lab bench and turns it upside down. Half full of what appears to be pure oil, it defies gravity and stays put. Bitumen, Bozak explains. He rights the glass and inserts a long metal spatula, teasing out a tentacle, dark and sticky as molasses.

"This is what all the fuss is about," he says with a smile.

That's a statement thick with meaning. In the oil sands alone, there are nearly 170 billion barrels of recoverable oil, making this reserve third only to Venezuela and Saudi Arabia, a kingdom built upon more than 260 billion barrels. In 2010, Alberta's reserves generated \$3.7 billion in royalties and made possible the export of 1.4 million barrels a day to the United States. Overall, they're a load-bearing pillar for an oil, gas and mining industry that accounts for almost a quarter of the province's gross domestic product and directly employs 140,000 people.

Hence the type of fuss most Albertans make over them - including the provincial and federal governments who recognize them as a major long-term provider of jobs and revenue.

That plays out differently elsewhere. The European Union, for example, has been developing a system to rank energy sources by environmental impact. Though it has yet to come to a final decision, it is threatening the oil sands with an economically damaging rating because

of the high amounts of energy it takes to extract a barrel of oil from the sands. Some businesses are reacting as well, shunning the sands to position their brands as eco-friendly, including Lush cosmetics and Liz Claiborne. Then there's been all the attention focused on the nearby Athabasca River, and on the impact the oil sands is having on water quality.

Alberta's oil producers are countering with action. Real progress in the areas of land, air, water and biodiversity, after all, is essential if Alberta's industry or government is to tell a story about the oil sands compelling enough to satisfy its critics. For Bozak, and a host of entrepreneurs like him, that necessity means opportunity. The bitumen in that beaker is a product of his ingenuity, separated by his own technology from tailings, the oil sands' major waste stream. There's clean sand and water to go with it, not far from being reintroduced into the environment, along with a claim that, given the chance, he could eliminate the tailings ponds in less than two decades. In other words, Bozak, a NAIT Civil Engineering Technology grad (class of '93) and vice president of RJ Oil Sands Inc. - an eight-person operation - may have a way for big companies to address the oil sands' challenge.

"We're offering solutions to help them do that," he says.

He's not alone. Others are recognizing this as a niche industry: identifying and addressing environmental issues some big oil companies



"THERE'S A HUGE POOL OF OPPORTUNITY OUT THERE RIGHT NOW."

- TROY LUPUL
VENTURE CAPITALIST

can't get to quickly enough because of the distance between idea and execution that comes with the complexities of corporate structures. As Bozak demonstrates, it's perfect territory for small business, nimble by nature, quick, focused and tenacious. Any one of them could probably argue they represent a novel solution capable of turning the tide of global opinion.

"All these little solutions," says Bozak, "well, it's going to be a big solution someday."

But first, entrepreneurs need to overcome a common obstacle: getting to market. In the oil sands, rapid development has left a legacy of challenges. Is Alberta positioned to support those who might help to fix it?

BOZAK'S SOLUTION IS ELEGANT, relatively simple technology. It uses no chemicals, no heat and no power other than electricity to pump oily wastewater into and out of the unit, basically a collection of holding tanks and pipes. The key component is his phase separator. On his shop-floor test unit, this is a blue pipe, a couple metres long and about 7.5 centimetres wide. Waste enters, is aerated with a non-reactive gas that, in the heightened pressure of the separator, breaks into bubbles small enough to cling to individual oil droplets, causing them to float up and away from virtually clean water.

"This was fully invented here," says Bozak. There are patents and blueprints, but designs for early prototypes go from his head to quick sketches for his resident welders, a few NAIT grads busily hammering, cutting and welding at one end of his shop. "I've got a talented group of guys here. If I can dream it up, they can make it."

As a startup entrepreneur, Bozak is an anomaly, and he knows it. "The work that I've done here, a financial institution wouldn't have touched it with a 10-foot pole." Although he's now bringing his technology to market, and quoting multimillion-dollar orders that will mean profit by next year, it has taken more years of research and development than most funders will abide. But, then, Jack Seguin isn't like most funders. The former NAIT welding instructor went on to found, among other ventures, English Bay Batter Inc., a continent-wide food manufacturer. Now president of RJ Oil Sands, he and his bank account put the company in unusually advantageous financial standing.

The more common challenge of finding funding may be slowing the flow of solutions to the oil sands – even if, as Troy Lupul says, "there's a huge pool of opportunity out there right now."

Co-founder and former president of FilterBoxx Water and Environmental Corp. and president of Allied Water, Lupul (Water and Wastewater Technician '90) has moved into venture capital with Walsingham Growth Partners, an investment group focused on energy,



Above, Wade Bozak’s facility includes a machine and fabrication shop, allowing RJ Oil Sands to quickly respond to its clients’ needs.

environmental and IT infrastructure. Still actively starting companies, he knows how difficult commercialization can be in Alberta, and how much it depends on conveniently and efficiently meeting the needs of big players focused on extraction.

“You could have the Holy Grail and it wouldn’t matter,” says Lupul. Startups need to approach major oil sands producers with comprehensive technologies, he adds: packages that neatly address an issue from start to finish. Bozak’s custom separator units fit in trailers that can be moved by flat-bed to production sites and connected upstream to the waste source. Oil is removed to the production stream, while the water, depending on the application, is either reused or reinjected into the formation. The entire process is fully automated.

New technology also has to satisfy the corporate “bean counters” says Lupul. That is, price – and fiscal responsibility – remains a factor. Of Alberta’s brightest ideas, the big question, as he sees it, is going to be about which is most cost effective. “It’s definitely not going to be some big mechanical system, I’ll tell you that. It’s going to be something that’s crude and rudimentary, but it works.”

FIRST, THAT RUDIMENTARY TECHNOLOGY has to actually get to market, which Bozak has. In Alberta, that’s no small feat.

Like most places around the world, the province suffers from a commercialization gap. Alberta Innovates - Technology Futures was created by the provincial government in 2010 to bridge that by helping small to medium-sized enterprises, or SMEs, take great ideas to market. “SMEs have been determined to be the key economic engines in a country or region that [provide] the big corporations with all the supplies and services they need, including technologies,” says Rick Tofani, the organization’s acting vice president of new ventures.

The oil sands giants may be setting goals in terms of sustainability, but when it comes down to the technology to achieve them, quite often “they expect their suppliers to come up with those wins for them,” he adds. It’s like the big electronics producers: “Nobody knows the names of the little guys, but everybody knows that the big guys don’t make the parts.”

To help the “little guys” – which, according to Tofani, make up more than 90 per cent of Alberta’s business community – Tech Futures acts as facilitator and funder to startups and post-secondary educators like NAIT, which work with SMEs on everything from applied research to connecting them with major producers.

“My argument has always been collaboration is the key to innovation,” says Dr. Haneef Mian, NAIT’s Leducor Group Applied Research Chair



"I'M AN INNOVATOR
AND AN INVENTOR,
BUT AT THE END
OF THE DAY I'M AN
ENTREPRENEUR."

- WADE BOZAK
VICE PRESIDENT, RJ OIL SANDS INC.

SEPARATION ISSUES

He knows it's a tall order, but Wade Bozak wants to appeal to the entirety of Alberta's oil industry. What's more, the vice president of RJ Oil Sands is convinced he can.

In Bozak's view, his RJOS phase separator, which leans on little more than the laws of physics to scrub oil production waste streams of hydrocarbons, is suited to all manner of conventional oil and oil sands operations - "any situation where they need high-efficiency de-oiling, so they can recycle the water," he says.

For producers, environmental sustainability is certainly one incentive to buy in. But results produced by the first commercial unit, now in operation at an oil site in southern Alberta, also

indicate a real financial benefit. Running at 50-per cent capacity, Bozak's technology has skimmed more than 8,000 barrels of oil from water used for reinjection. That translates into recovered revenues of \$800,000, market dependent.

For him, those numbers transform the tailings ponds of Alberta's oil sands from challenge into opportunity. "I see it as an oil source," says Bozak. Every cubic metre of material they hold, he says, contains about a quarter-barrel of bitumen. Currently, the ponds are estimated at 840 million cubic metres. "That bitumen is extractable. If you do the math on that . . . it's significant."



Above, a demonstration model of the RJ Oil Sands phase separator, which removes residual hydrocarbons from oil producers' waste streams.

"NOBODY KNOWS THE NAMES OF THE LITTLE GUYS, BUT EVERYBODY KNOWS THAT THE BIG GUYS DON'T MAKE THE PARTS."

- RICK TOFANI, ACTING VICE PRESIDENT, NEW VENTURES ALBERTA INNOVATES - TECHNOLOGY FUTURES

in Oil Sands Environmental Sustainability. As head of a group that is fostering relationships between SMEs with innovative technologies and the oil sands' biggest players, he knows that neither can do it alone. SMEs don't have access to the bitumen and the majors aren't in the business of designing or developing technologies. "They are business organizations that are in the process of providing something to their shareholders," he says. "That's their primary objective."

In addition to its capacity to validate and test new technologies through applied research, he sees the value of his program in its role as one of Alberta's main hubs of information, ideas and resources that lead to solutions. And as Tofani sees it, programs like this are a fundamental part of Alberta's approach to improved commercialization overall.

"It can't be left to SMEs knocking their heads together and competing with one another," he says. "They've got to be part of a well-oiled ecosystem."

"I'M AN INNOVATOR AND AN INVENTOR, but at the end of the day I'm an entrepreneur," says Bozak. And because of his success so far, he's also a poster-boy for what might come of Tofani's "ecosystem," a fine balance of regulators, funders, facilitators, and companies big and small. To top it off, Bozak has the attitude that could help change perceptions of those critical of today's oil sands industry.

"I'd love to see the big problems go away, and I'd like to have a part in that," he says. "A made-in-Alberta solution, by an Albertan."

Over the last 10 to 15 years, the market has changed considerably - especially in the way it has fallen under the scrutiny of the western world. "In days gone by, technologies that increased the bottom line were of utmost importance," says Tofani. That's still true, but nowadays, there's a much greater emphasis on sustainability. "It's become a major factor in a large multinational's operations."

Recently, Corporate Knights Inc. provided proof of that. As part of its annual "Global 100" program, the Toronto-based company devoted to "clean capitalism" ranks companies for sustainability. Suncor Energy Inc., the oil sands' biggest player, was this year's highest-placing Canadian company at 47. And being the company's third appearance on the list, it may indicate a trend upon which SMEs might capitalize.

"Environmental sustainability is critically important to our entire industry," says Shelley Powell, Suncor's vice president of oil sands transformation, "so we're certainly looking to collaborate with others who have similar priorities and values."

To Troy Lupul, that's a call to action. "There's so much opportunity in that space. I think somebody with the right ideas can have huge rewards," he says, careful to add the winning ideas are those that meet needs quickly and efficiently, and with virtually no disruption in operations.

Bozak knows this, and, as he attempts to convince more of the industry of the value of his separation device, he understands the challenge ahead. Ultimately, the market will drive innovation, and will be the sole decider of Bozak's success, no matter how much funding he gets. Though he's beginning to make a name for RJ Oil Sands, he's yet to become an essential cog in the oil sands industry - or a leading character in a new story Alberta can tell about its fossil-fuel economy.

Bozak might better serve in a supporting role anyway. The stage may finally be set, with regulators and industry champions calling direction, for a chorus to emerge. The plot has certainly thickened. In the best ending, Bozak is just one of many voices that lead Alberta to a resolution that satisfies itself as much as critics.

"I truly believe we could eliminate the tailings ponds," he says. "And do it at a profit." ■

This hand signals game for the Xbox Kinect teaches boilermakers, ironworkers and steel fabricators how to communicate with crane and hoist operators.

GET SERIOUS ABOUT GAMING

DON'T LET THE NAME FOOL YOU. Aside from being a teaching tool, serious games can be a lot of fun.

While the term serious games has been used since the 1970s to describe games for the purpose of teaching, training or testing, over the past decade it has become widely used to describe part of the electronic gaming industry.

Now, serious games are being developed for every application, from flight simulators that train pilots to applications that train and test surgeons.

Digital Media and IT instructor Armand Cadieux is making sure his students are ready to score big in this growing market. "It's the same tools, whether we're designing an entertainment video game or whether we're designing a simulator for crane operators," he says. "[Students are] a little bit intrigued by the concept that there are other places to take their training and knowledge into industry, other than just blockbuster video games."

He believes the biggest advantage to training with serious games is giving users a safe environment to test their skills and fail. "Learning from your mistakes in a virtual environment helps prevent damage to equipment; it helps prevent loss of life; it helps prevent injury to others."

This spring, digital media students are putting the finishing touches on these three serious games they developed for NAIT programs.

— Ruth Juliebo

HAND SIGNALS

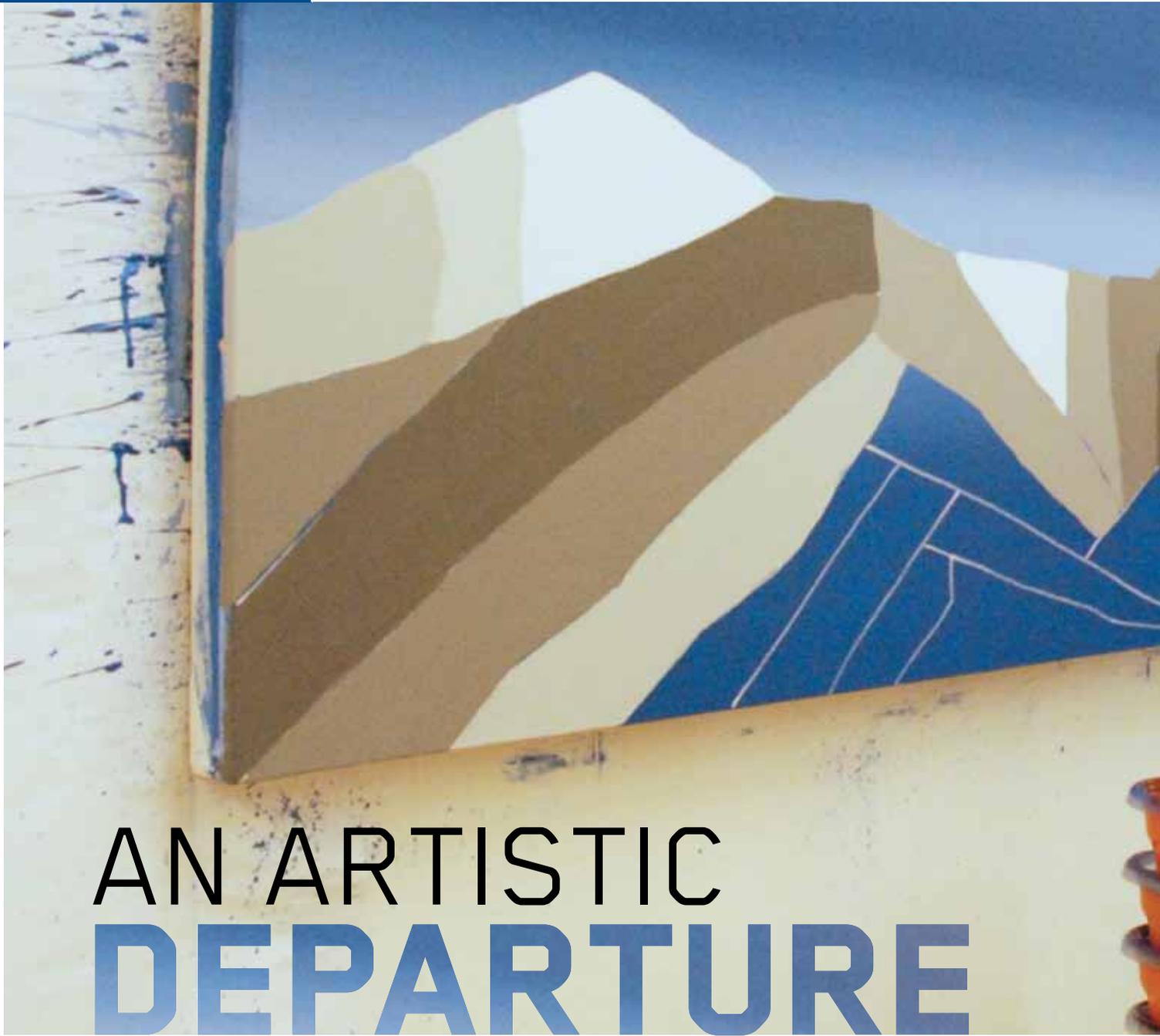
Calling all boilermakers, ironworkers and steel fabricators. Have you ever been frustrated with crane and hoist operators not moving your equipment properly? Well, step right up to the hand signals how-to game and master the 20 or so hand commands you'll need to communicate your instructions to crane and hoist operators. You'll have a blast playing on the Xbox Kinect and be better prepared the next time you need to have a piece of equipment moved in the field.

OPERATION

If the thought of operating on man's best friend has you as nervous as a cat in a room full of rocking chairs, pull up a chair and play "operation." This game, for Animal Health Technology students, can be played on any computer and allows you to administer and monitor the anesthetic on dear Fido while he's under the knife. No real animals will be hurt in the playing of this serious game.

SKETCH IT

Creating great dental sketches no longer requires getting in touch with your inner Michelangelo. Denturists of tomorrow, replace your pencil with a mouse and use this interactive new game to make professional-quality partial denture sketches. It's already what industry is moving towards. So stay ahead of the game, and get clicking!



AN ARTISTIC DEPARTURE



Top, Jason Carter at work on *Old Man Mountain with Great Mother Bear*; above, Carter's finished piece now hangs in the Edmonton International Airport.

GIVEN THE OPPORTUNITY to create a work of art for the Edmonton International Airport, Edmonton artist Jason Carter drew inspiration from a reliable source – himself. “When I’m thinking of new artwork, I think about what I would like,” says the Graphic Communications grad (class of ‘01).

The airport liked it, too. Selected from more than 200 submissions as one of five permanent pieces included in the airport’s 2012 expansion, Carter’s *Old Man Mountain with Great Mother Bear* is installed on the wall leading to the U.S. Customs and Border Protection Area. An estimated one million people per year will see it. At nearly seven metres wide and about half a metre tall, it will be hard to miss. “I wanted something big, expansive,” says Carter.



TOP PHOTO SUPPLIED; PHOTO BELOW BY BLAISE VAN MALSEN

He also wanted something reflective of northern Alberta. “Old Man Mountain is in Jasper, Edmonton’s mountain playground.” And, he adds, “I love creating and painting bears. They are so powerful.”

Citing the Group of Seven, Andy Warhol and Norval Mourrisseau as his influences, Carter describes his paintings as having “a pop element, with solid, bright colours and black outlines.”

Liz Dwernychuk, the airport’s creative services manager, says Carter’s one-of-a-kind painting helps to offset some of the anxiety experienced by air travellers. “The colours provide a calming tone for passengers,” she says.

Carter’s origin as a painter began with the same self-assurance that guided his evolution as a carver. Given a piece of soapstone by his sister,

Carter converted the stone into a raven, which he promptly sold for about \$350. Three years later, as he prepared for his first carving show, he realized his work was only half done.

“The walls in the gallery were completely bare. So I thought, I’ve got to paint something.” He simply painted his carvings. “I used bright, solid, vibrant colours, and my design background from NAIT to create paintings that were balanced. People were drawn to them.”

The thrill of seeing his work in high profile places is not completely new to Carter. He was the only Alberta artist to have his own showing at Alberta House on Alberta Day at the Vancouver 2010 Winter Olympics.

“I do what appeals to me,” he says. “I’m just very lucky that other people like it as much as I do.”

— Don Trembath

STORY BY
SCOTT MESSENGER

PHOTOS BY
PAT KANE

Northwest Territories is one of Canada's most economically and socially beleaguered jurisdictions. Is the unflappable Bob McLeod, NAIT grad-turned-premier, the one to turn it around?

N O R T H E R N C O M P O S U R E

THE STORY OF A PREMIER IS, at heart, the story of the place behind the person – in this case, a place about which most Canadians know relatively little. So, though this is the story of Bob McLeod and the challenges this NAIT business grad (Management '74) faces as the new premier of Northwest Territories, we'll leave him for now to his work in the legislature, a modern building of glass and zinc situated in Capital Park, a wilderness of rock and stunted trees a short walk from downtown Yellowknife.

Northwest Territories is among the last of Canada's frontier lands. During his election campaign McLeod himself referred to it as a "pioneering region."

Fewer than 44,000 people (more than half of them aboriginal) live in an area large enough to bring the population density to almost nobody per square kilometre, a number that has virtually flat-lined in recent years. That leaves a lot of land open for bear, and the marten, lynx, wolverine and wolves that continue to support a strong fur trade. And, to risk romanticizing the territory further, this is a place where night skies, unpolluted by urban ambient light, undulate with aurora borealis – at least when not lit by the midnight summer sun.

But it's also a place that asks much of its inhabitants. Approaching solstice, there's little daylight to relieve winter blues: in Yellowknife, the sun rises after 9 a.m. and sets by 4 p.m. after spending the day just above the horizon. Daily average temperatures sit below zero seven months a year. In a cold snap, serious parkas are *de rigueur*: so many Yellowknifers are enveloped in pricey Canada Goose jackets you'd think they were only here on a sponsored expedition.



"MY WHOLE REASON FOR GETTING INTO POLITICS IS THAT, BORN AND RAISED UP HERE, I FELT THAT I COULD MAKE A DIFFERENCE."

- BOB MCLEOD
PREMIER, NORTHWEST TERRITORIES

There's more to contend with, of course, than a few months lacking in creature comforts. While Yellowknife is often identified as having the nation's highest household income, the stat tends to be divorced from the territory's high cost of living. The unemployment rate can be equally deceiving, more or less on par with the country as a whole, but often climbing well into the double digits outside Yellowknife. On top of this, the territory's borrowing capacity is nearly maxed out.

But the most important issue to address – the one all others may hinge upon – is control over its own destiny. Currently, Northwest Territories is one of just two Canadian jurisdictions (the other being Nunavut) to have no authority over its natural resources – and

so no access to a revenue stream that might begin to address much of what ails the region. For now, that remains with the federal government, likely leaving the territory economically and socially hamstrung until decision-making power is passed down – devolved – to McLeod's government. Elected this October, the born-and-raised northerner is positioned, thanks to an agreement recently signed with Ottawa, as the premier to deliver Northwest Territories into true prosperity and independence by finally laying claim to its own backyard.

Even if he's successful, he'll still face one of the most challenging premierships in Canada, a prospect he shrugs off. "If you want to make things happen," says McLeod, "you go for the top job."



WHICH TAKES US BACK to the premier's office, an environment so new to him it still lacks a personal touch, his pictures and such still packed in boxes. "People were asking me, 'Weren't you planning to stay awhile?'" says McLeod with a laugh.

What is there – a shelf full of aboriginal carvings, moccasins and other gifts to government from communities in the territory – aligns nicely with McLeod's own background as a northerner. His mother was Métis from Manitoba, his father a clerk with the Hudson's Bay Company, following a tradition that started with his great-great-grandfather, a Scot who arrived in the area in 1869. He calls Fort Providence, a mostly aboriginal community about 300 kilometres southwest of the capital, "an ideal place to grow up" even if "conditions were tough. There was no power, no running water, no roads. Most people just had dog teams. You had to work hard to be independent."

McLeod learned how to do that at an unusually early age. Stricken with tuberculosis at four years old, he spent the next 18 months in a Fort Simpson hospital, more than 300 kilometres from home, watched over by friends in the area. But even in healthier times, McLeod, like his seven siblings, enjoyed escaping the house and discovering the world for himself. "We were adventurers. Six or seven of us would jump in my dad's boat and take our fishing rods and guns and disappear all day. We'd do that all summer," says McLeod, now exiting his 50s.

Politics wasn't exactly a calling he pursued. After high school, McLeod, once a talented hockey player, tried for a spot with the St. Catharines Black Hawks of the Ontario Hockey Association. He didn't make it, and came home without much idea of what to do next.

"I was hanging around town, having a good time. After two weeks my dad asked me what my plans were."

He took the cue, taking a job in the oil industry in Fox Creek, Alberta, to save money for school, first the diploma from NAIT – "That was where I learned how to put it all together, to understand what you had to do to be successful" – then a commerce degree from the University of Alberta. A few years later, he ended up back in the territory, in Norman Wells in the Mackenzie Valley, working for Imperial Oil. There, the federal government took notice of him and offered him a job in Yellowknife. He took it, happy to get back to playing hockey, and began a relatively rapid progression through finance then management positions that took advantage of his expertise in industry and resources, as well as his ability to develop vital relationships with communities across the territory. In 2007, he parlayed that experience into public office, elected to the riding of Yellowknife South, and acclaimed in 2011, with the members of the legislative assembly voting him in as premier that year.

Landing the top job hasn't changed his approach to politics. McLeod sees progress as rooted in communication, especially when dealing with aboriginals, by right the largest landowners in the region. "We have to listen to them," says the premier. "We've got to talk. I think at the end of the day everybody wants to work in the best interests of the Northwest Territories and their own people."

THAT ALSO APPLIES to leading a consensus-based government in which there are no political parties. Members are elected as independents – outside McLeod's cabinet, allegiances form and dissolve according to issue. Debate is orderly and thorough, almost genteel, making Ottawa's Parliament Hill look like a parody of democracy, raucous and medieval.

Far left, Bob McLeod, premier of Northwest Territories, in the chamber of the legislature in Yellowknife; centre, Yellowknife with the legislature in the foreground; above, in session with McLeod and his cabinet at left.



BOB MCLEOD'S VIEW

Before being elected premier in October 2011, social agencies and organizations were invited to ask Bob McLeod questions about his environmental, social and economic policies. Here are excerpts of his responses to questions about . . .

HEALTH

"Prevention is the key to maintaining good health, as well as educating people to understand that they are responsible for their health. Health is a state of complete physical, mental and social well-being."

LITERACY

"Literate people generally have a higher socio-economic status and enjoy better health and employment prospects. So . . . addressing literacy skills is essential to development of all social programs."

ARTS AND CULTURE

"Arts and culture is critically important to having a healthy, vibrant and economically viable community. It is akin to being the lifeblood of a community. It reflects who we are as a people and helps to preserve our unique culture and way of life. It binds us together."

Above left, Bob McLeod in his office in the legislature with a view Frame Lake behind him; above right, Northwest Territories is one of the world's largest producers of diamonds.

Fundamental to McLeod's job is the ability to unite the house. He takes a measured approach, listening, taking notes, and seems invariably mild-mannered.

"Don't let that fool you," says Michael Miltenberger, McLeod's minister of finance, minister of environment and natural resources, and minister responsible for the Northwest Territories Power Corporation.

Miltenberger, in his fifth consecutive term as a member of the legislative assembly, knows McLeod as "a good Metis boy from Fort Providence." They attended high school together, where the minister was impressed by McLeod's skills as a hockey player. More recently, he knows him as another kind of competitor: he ran against him for the premiership. "If it couldn't be me, I was very glad it was him," he says.

"Politics, even with a consensus government, can be rough-and-tumble, full contact," the minister adds. "In this legislature, if I was going to go down a dark alley with somebody, he'd be my first choice. I know he'd be at my back."

One afternoon during the December session, Wendy Bisaro doesn't appear to feel the same way. Up in the gallery, more than a dozen community activists and members of the local anti-poverty coalition watch as Bisaro, member for Frame Lake, stands and shares her thoughts on the government not involving them in drafting a strategy to reduce poverty in the territory – an enormous challenge in a place where unemployment is exacerbated by a cost of living tied to high transportation costs. "We will not succeed if it is developed in isolation by government alone," she tells the house.

When she later has the chance to question the premier on the matter, he explains that they have



consulted extensively, and involved focus groups across the territory; this will inform the strategy, which will be shared when finished, and no sooner.

But taking that to mean no public input into the actual crafting of the policy, Bisaro is disappointed. "I'm also totally dismayed that we are going to have a draft strategy produced by a working group of bureaucrats." She insists that the process has to involve the community, the poor, non-profit groups, even business. She almost pleads with the premier for their inclusion. "Is there an opportunity for all those people to also have input into this strategy?"

He doesn't budge.

McLeod knows the challenge of maintaining momentum in a consensus government. He needs to convince members outside his cabinet that he's the guy they want at their backs. But he also appreciates the potential disadvantage of the system - "they outnumber us," he says of the members across the floor. At the same time, he knows any victory they achieve is arguably more democratic than those of a ruling party: here, progress demands the members, each representing distinct concerns, be unified.

SONNY BLAKE'S RIDING of Mackenzie Delta, the far northwest corner of the territorial mainland, exemplifies the more extreme challenges of living in the territory. Before being elected to this (his first) term, the fresh-faced 35-year-old served as chief and mayor of Tsiigehtchic, a community of less than 130. His priorities: a nurse for one of his constituency's communities, and a long-term care facility if he can manage it. Employment sits somewhere around 35 per cent in the area, but that doesn't count fur trappers. Local costs make heading hundreds of kilometres south to shop in Whitehorse

and Edmonton sensible excursions. "We have to make the cost of living in the territory equal at all levels," says Blake.

He believes there's enough potential in his region to make this a reality - with the support of the right leader. When Blake was mayor and chief, McLeod's attentiveness to his community impressed him, and convinced him of the premier's ability to work with other aboriginal groups to create a unified vision for the future of Northwest Territories. "I consider him a role model," says Blake.

As well, if McLeod could succeed in initiating the long-delayed Mackenzie Valley gas project, Blake's region would be at the epicenter of an industry that would send 800 million cubic feet of natural gas per day south along a 1,200-kilometre pipeline. Job creation could be unprecedented. And if authority over resources were handed over from the federal government, royalties would follow to support local projects.

Devolution, then, would be a historic event. According to Miltenberger, it would bring Northwest Territories "as close as we're going to [get] to being full members of confederation." Thanks to an agreement in principle signed in January 2011 to work with the federal government on the issue, combined with McLeod's experience in negotiating the transfer of control over forestry and firefighting to the territory in the late 1980s, he may finally be the premier to make that happen.

"My whole reason for getting into politics is that, born and raised up here, I felt that I could make a difference," says McLeod. Devolution is a key part of that. "I wanted to see certain things happen so that the north will continue to be a great place to live, work and invest in."

Above, wolves are part of a trapping industry in Northwest Territories that supplies high-quality furs to the world.



The aurora borealis, or northern lights, helps draw tourists that spend more than \$100 million each year in Northwest Territories.

He's a firm believer "that's the best way to improve your social indicators."

Overall, McLeod, just a few months into his new role, seems confident - despite emerging challenges. Amongst the biggest is a recent lawsuit brought by the Gwich'in Tribal Council against the Northwest Territories and federal governments for a lack of consultation leading up to that agreement in principle, a claim McLeod contests. In his favour, however, are ongoing devolution negotiations with the prime minister and a faith in the skills and commitment of his cabinet and the other members. "I think my colleagues want to find solutions," he says.

Compared to the provinces, Northwest Territories is a place in dire need of solutions. Though his options remain limited, McLeod isn't showing the strain, perhaps because he sees time as being on his side. "I've still got four years left - at least." And he has the personal motivation. Northwest Territories is home for him and his wife, and his son and two grandkids who just live up the street. "I don't think I'll ever leave," says McLeod. Stemming from those childhood excursions into the backcountry, maybe he knows the place too well to detach from it, and too well to lose optimism.

As a younger man, McLeod ventured much further afield in his exploring. As a reward for those early successes in devolution negotiations with the federal government, he was given a scholarship of sorts to travel the world and meet dignitaries to discuss issues they faced. His goal was to see what could be learned for Canada, but the year-long exercise produced personal realizations he carries with him today.

"Whatever the problem, there's always different ways to approach it," says McLeod. "However desperate the situation, there's always hope." ■

NORTHERN PROSPECTS

Northwest Territories might be one of Canada's most economically challenged jurisdictions, but it's also bursting with potential. Here are a few initiatives that could soon be paying significant dividends.

Mackenzie Gas Project. By 2015, construction could begin on a 1,220-kilometre pipeline that will send natural gas from the Mackenzie Delta - the site of six trillion cubic feet of discovered reserves - to Alberta.

Inuvik Satellite Station Facility. A 13-metre satellite dish is now in place to collect data in near real-time from satellites passing above the Canadian north, attracting international commercial clients.

Mining. Diamonds remain a multibillion-dollar industry, but exploration companies are taking note of a variety of other resources including silver and gold, but also rare earth elements that comprise the unsung heroes of the periodic table.



IT TAKES ALL KINDS OF ENERGY

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1 Warren Steen's trip begins in his home community of Tuktoyaktuk. Located on the edge of the Beaufort Sea, Tuk is the northernmost community on the Canadian mainland. It's a land of flat, barren tundra, marsh and shallow lakes.



4 Steen runs into his share of problems. His trip last August was the worst. His problems started before Eagle Plains, where he had to replace his two rear tires - "The old ones suffered a 'rough road' that trip. It was a miracle they had just the tires I needed" - and continued all the way to Edmonton, where, with the help of his instructor, Bobby Haraba, and an automotive instructor - he was able to identify the cylinder that had been misfiring since before Chetwynd, B.C.

2 Travel to Inuvik is possible by air, ferry and seasonal ice road. Each August, Steen put his Ford F150 4x4 on a barge to cross the Mackenzie River to Inuvik, where the road south starts. Cost: around \$900. Fortunately for Steen, through a friend he was twice able to get free passage on a chartered barge.

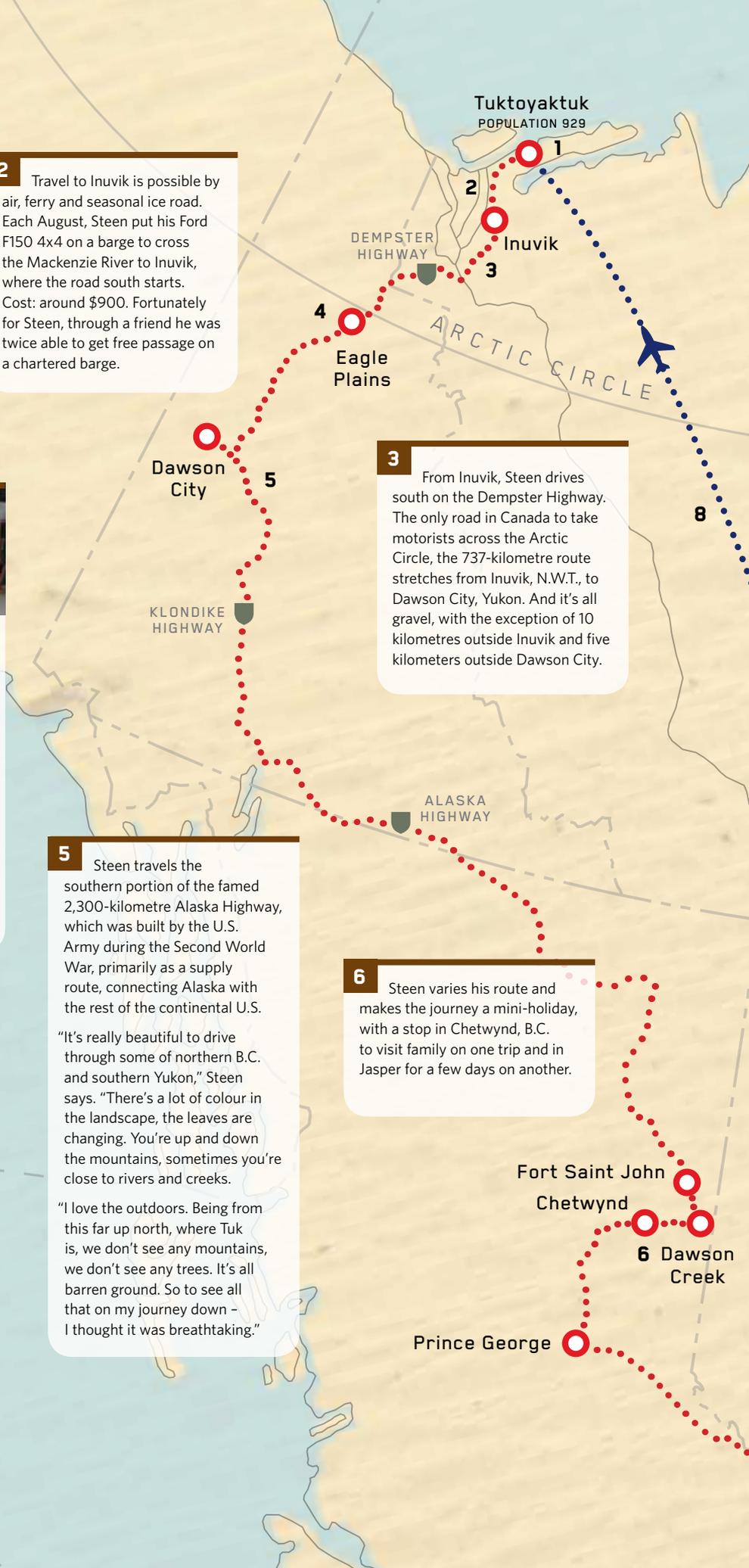
3 From Inuvik, Steen drives south on the Dempster Highway. The only road in Canada to take motorists across the Arctic Circle, the 737-kilometre route stretches from Inuvik, N.W.T., to Dawson City, Yukon. And it's all gravel, with the exception of 10 kilometres outside Inuvik and five kilometers outside Dawson City.

5 Steen travels the southern portion of the famed 2,300-kilometre Alaska Highway, which was built by the U.S. Army during the Second World War, primarily as a supply route, connecting Alaska with the rest of the continental U.S.

"It's really beautiful to drive through some of northern B.C. and southern Yukon," Steen says. "There's a lot of colour in the landscape, the leaves are changing. You're up and down the mountains, sometimes you're close to rivers and creeks."

"I love the outdoors. Being from this far up north, where Tuk is, we don't see any mountains, we don't see any trees. It's all barren ground. So to see all that on my journey down - I thought it was breathtaking."

6 Steen varies his route and makes the journey a mini-holiday, with a stop in Chetwynd, B.C. to visit family on one trip and in Jasper for a few days on another.



PHOTOS SUPPLIED BY BARB DILLON/GNWT, WARREN STEEN, LEIGH FREY
ILLUSTRATION BY TRINA KOSCIELNIK

THE LONG WAY AROUND

FANS OF HISTORY TELEVISION'S *Ice Road Truckers* and *Ice Pilots NWT* will have a partial picture of Warren Steen's roughly 4,000-kilometre trek to NAIT for his apprenticeship training. The heavy duty journeyman with the Hamlet of Tuktoyaktuk, N.W.T., took his first road trip to Edmonton around 2000, during the second year of his Automotive Service Technician training (class of '02) and was hooked. He made the trip four more times while training as a Heavy Equipment Technician (class of '11) – and each time, getting himself and his truck to and from school has required two round trips, by truck, ferry and plane and involved crossing a 187-kilometre ice road.

Steen loves the solitude of the road – especially in late August on his way to school. "I just like the beauty of that highway in the fall time. My time alone on that highway – that's how I mentally prepare for the upcoming eight weeks at NAIT. I know it's going to be hectic and busy; I like to just drive and reflect on what I've got to do, and my goals."

— Kristen Vernon

8



Getting himself – and his truck – back home is the less enjoyable part of the journey.

When the eight weeks of apprenticeship training finished in late October, rivers were in the midst of freeze up. The ferries had stopped operating, but the ice roads weren't yet open, which meant Steen had to leave his truck behind and fly home.

The 187-kilometre ice road between Tuk and Inuvik opens from about mid- to late December to mid- to late April, leaving Steen a small window of opportunity to fly back to Edmonton to pick up his truck to drive it back home. It's a trip he typically made in late December or early January.

"The trips up were always cold and dark."

Plans for a 140-kilometre year-round highway between Inuvik and Tuk should make future trips much easier.

7



"I enjoyed the whole experience [at NAIT]," Steen says. "I really appreciate and am fortunate to have that experience of meeting all the people, the instructors, the classmates."

"I hope I get to do it again in another related trade or course."

Steen says he'd like other youth in Tuk to pursue a post-secondary education. "Anytime I talk to high school students, I tell them: 'Your Grade 12 graduation is just the beginning.'"

Edmonton

7

Jasper

BREW THE PERFECT CUP OF JOE



DOMINIC RIES TRAVELLED THE WORLD honing his skills as a pastry chef after graduating from Culinary Arts in 1989. But a persistent problem nagged him: The coffee served alongside his scrumptious desserts was little better than swill. In 2005, Ries gave in to the allure of the coffee bean and formed Catfish Coffee Roasters. Ries and partner Tracy Caron take pride in roasting the freshest possible coffee beans on their acreage east of Edmonton and selling them at Old Strathcona Farmers Market. If you're a new customer, Ries will greet you with one question: "Do you like your coffee edgy, smoky, earthy, or sweet - and interesting or not interesting?" From there, brewing the perfect cup is up to you. Here though, some tips from Ries to get you on your way.

— Eliza Barlow



PHOTOS BY BLAISE VAN MALSEN

Left, Dominic Ries at Old Strathcona Farmers Market.

PASSPORT IN YOUR CUP

Sample Catfish's 13 different coffees (give or take a few, depending on what's in season) and you can taste your way around the world. Dominic Ries offers some rules of thumb on what to expect from different regions. Beans from Ethiopia tend to have an earthy taste, far different than coffee from Bali, which is usually edgy and bold. Peruvian coffee tends to be dark and sweet. But it can all change without notice. "I can have coffee from Guatemala and six weeks later [when the next batch arrives], it's completely different," says Ries.

TREAT YOUR BEANS RIGHT

Coffee beans deteriorate quickly in bone-dry Alberta, which is why Ries orders a new shipment every six weeks. He recommends storing roasted beans in an airtight container for no more than 30 days. Don't put them in the freezer, as they readily take on the odours and tastes of food stored around them.

DE-BITTER YOUR BREW

One of the biggest home-brewing mistakes is improper grind, says Ries. A too-coarse grind will send the water through the coffee too quickly, making it weak. Too fine and the water will be in contact with the coffee for too long, making it bitter. Ries says to carefully follow the instructions for your coffee maker and grinder. In general, French presses take a coarse grind, flat-bottom filters take medium, and cone filters need a fine grind. Over-steeping in a French press is another common error, says Ries, who recommends steeping for just three minutes.

DECAF: SACRILEGE?

"Caffeine is a wonderful thing," says Ries, quite earnestly. Still, he doesn't judge decaf devotees. He orders beans that have been decaffeinated by water process to remove 97 per cent of the caffeine, without chemicals. He says the process can take some of the "nuance" away from the coffee, so he and Tracy Caron roast decaf beans a little longer to bring out more flavour.

NURTURE A RELATIONSHIP WITH COFFEE

Ries says the quest for the perfect cup is about giving yourself the opportunity to experiment and expose your palate to different flavours and roasts. Same goes for how you brew it. "We don't put our product on a pedestal and say, 'You have to do it this way.' I really like the French press, but I've also had some fantastic coffee from a 1975 percolator."

HIGH def

Espresso

Espresso is a blend, rather than a bean, Ries explains. It's each roaster's own secret recipe and, in Ries's case, might use anywhere from three to seven different varieties. For his espresso, he blends light and medium roasts to deliver a strong dose of caffeine – as the darker the roast, the less caffeine that remains. "We believe espresso should have a lot of legs to it."





The Athens Classic Marathon, which ends here at the Panathinaiko Stadium, follows the legendary route taken by a Greek soldier who, in 490 B.C., ran from the Battle of Marathon to Athens to announce victory over the Persians. Inset, marathoner Jody Fath.

THE ORIGINAL MARATHON

NOV. 13, 2011

A FRIEND OF MINE, Frank Tse (Materials Engineering Technology '73), was turning 60 last November, and he said, "Wouldn't it be awesome to run the original Greek marathon for my birthday?" So 15 of us went to Greece to run the Athens Classic Marathon.

It was my fourth marathon. I've been running for three or four years. The day of the race was horribly cold. It was very windy and rainy. Eight thousand runners met in front of the Parliament Buildings in Athens. They bused all of us northeast to the city of Marathon for the start of the race, 42.2 kilometres away.

They gave us great big plastic bags to keep us warm. I took mine off. I didn't want to run in that. We're Canadians. We're used to bad weather. But when we checked the weather for the race the year before, it was sunny and hot, 25 C, so we were a bit surprised.

It was the hilliest route I'd ever run. Twelve straight kilometres in the middle were uphill. It was challenging – not a steep climb, but gradual. Every time I turned a

corner there was another hill going up, then the last 10K were all downhill.

The people watching us in the villages shouted "Bravo! Bravo!" when we ran by. The kids held their hands up for high-fives. It was definitely different. The people handed us olive branches. I took one. No one ever mentioned what they were for.

The race ended in the Panathinaiko Stadium in Athens, the site of the first modern Olympics in 1896. It's made entirely of marble, very hard and it was so cold to sit in after the race. It was very, very special finishing in the stadium, running on the Olympic track. It was almost surreal. I finished with a personal best time of four hours and 16 minutes, four minutes off my old time. I had a really good run.

JODY FATH
BUSINESS ADMINISTRATION - MANAGEMENT '02
STEWARDSHIP COORDINATOR
NAIT DEPARTMENT OF ADVANCEMENT

As told to Don Trembath



WEB EXTRA

Scan this QR code for tips from Jody Fath on planning a round-the-world backpacking trip or visit techlifemag.ca/backpacking.htm. Need a QR code reader? See p. 5.

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MOVEABLE FEASTS

STORY BY
TRACY HYATT
PHOTOS BY
BLAISE VAN MALSEN

Faced with the challenges of starting a traditional restaurant, Nevin Fenske decided to hit the road with a gourmet food truck, and found his niche curbside.

THERE ARE FEW notable places to eat lunch on 108 Street south of Jasper Avenue. Forget your lunch at home and your options are donairs, pub grub or fast food. It's a surprising situation: the surrounding office towers are staffed by thousands, trainloads of commuters spill out of nearby Corona LRT Station and the area's population of condo dwellers is steadily growing. Yet few restaurateurs seem willing to chance this pocket of downtown Edmonton.

Nevin Fenske (Cook '05), in contrast, sees opportunity. A year ago he brought a bit of excitement to 108 Street with his Drift food truck, specializing in gourmet sandwiches. Painted teal blue, the converted courier truck adds welcome colour to the strip's concrete and glass façades. Four days a week, office workers, diehard foodies and curious passersby queue up at his window for lunch. They pore over old postcards doubling as menus and ponder their options. Craving Asian fusion? Go with the pork belly crowned with pickled daikon, cilantro and creamy chili mayo. For something less adventurous, try the back bacon with brie and roasted apples.

In the past year, mobile eateries like Drift have become an increasingly common sight on Edmonton streets. Movable kitchens serving food from all corners of the world are attracting droves. True, food trucks and carts have always served up fries and hot dogs, but the new generation of mobile restaurants is taking street eats to the next level. The appeal to customers is the novelty of the experience, affordable prices and, in most cases, food quality that rivals that of conventional restaurants. For budding restaurateurs, there's no need for deep pockets to get started. It's an appealing concept with the potential to reinvent fast, casual dining - and even bring some much-needed vitality to Edmonton's downtown core.



Above, Nevin and Kara Fenske are a team, working 12 to 16 hour days. Bottom right, one of Drift's gourmet sandwiches.

BACK WHEN THEY WERE first considering the restaurant business, Fenske and his wife, Kara, started crunching the numbers and found they couldn't ignore the facts. A mobile restaurant has lower overhead and fewer staff, which means greater profit margins than a bricks-and-mortar restaurant. "A couple years down the road, you can already start seeing that money come back after paying off things," says Fenske, who earned his culinary stripes in the kitchens of Koutouki Taverna, Normands, Glenora Bistro and the shuttered Skinny Legs and Cowgirls.

Even the licensing process is relatively simple and affordable in Edmonton. To operate a food truck here requires a street vending permit, a travelling or temporary food sales licence and a monthly parking permit from the city. The vendor also has to pass an Alberta Health Services inspection.

Fenske has dreamed of opening a restaurant since culinary school. It nearly happened two years ago, when he and Kara went through the labourious process of opening an eatery downtown. But when the deal to secure space fell through, they investigated other options, which included a tour of Portland, Oregon's "food pods" – lots transformed into outdoor food courts. Impressed with the innovative food, the vibe and the

mass acceptance, Fenske needed no further convincing. By summer 2011, Drift was operating four days a week on 108 Street and once a week at Churchill Square.

He's not the only one. From his downtown office, Jim Taylor can look across 102 Street at lunch time to see the lineup at Nomad, another popular food truck. There aren't many places nearby where you can buy smoked tomato chowder with grilled cheese croutons and pork cheek bacon for under \$10. "I don't think the average Edmontonian has any idea of the quality that's being served from these food trucks," says the executive director of the Downtown Business Association. "It's not just about convenience food."

Last September, a downtown park and street played host to What the Truck, a food festival solely for food trucks. Several hundred people packed the usually empty space to sample food from 10 vendors. From a revitalization perspective, Taylor is hopeful for more of these kinds of events. "Vibrant downtowns have interesting street-level activities that draw people out, instead of sitting in an office at noon," says Taylor. More food trucks might help.

And more might be en route. While Chris Delaney (Culinary Arts '94) waits for construction to finish on



"I DON'T THINK THE AVERAGE EDMONTONIAN HAS ANY IDEA OF THE QUALITY THAT'S BEING SERVED FROM THESE FOOD TRUCKS."

- JIM TAYLOR, EXECUTIVE DIRECTOR
DOWNTOWN BUSINESS ASSOCIATION

his Big City Sandwich food truck, he's honing his skills at another culinary phenomenon in Edmonton, the pop-up restaurant, where a visiting chef temporarily takes over an establishment's kitchen.

If all goes well, Big City Sandwich will be parked weekdays in high-traffic locations around the city and surrounding area by mid-summer. "You can't ignore the profitability and versatility of food trucks," says Delaney, who eventually hopes to pack in his day job selling industrial supplies.

"If a location doesn't work out, so what? I'm not stuck like a bricks-and-mortar restaurant would be. I can move."

EDMONTON MAY FAVOUR chain restaurants – Earls and Boston Pizza opened their first restaurants here – but it's fairly receptive to food trucks, compared to other Canadian cities. While Calgary has also been supportive (launching a pilot program late last summer), Toronto has so many restrictions on motorized trucks (it is illegal to park near a restaurant, place of worship or on downtown's busiest streets), vendors are lobbying to cut the red tape. Montreal hasn't allowed mobile eateries since the 1960s, when the mayor outlawed them.

However, as places like Portland have shown, by removing the barriers that hinder potential restaurateurs, cities create environments that nurture the next generation of talented young chefs. And, for their efforts, cities can see their drabber streets revitalized and, thanks to lunchtime lineups, repopulated.

That's one of the things that keep Fenske going. Running a food truck isn't easy. Drift is parked street-side for about four hours, but he and Kara work much longer days. At 8 a.m., when Drift's midday customers are heading into work, they're at the bakery buying bread. After lunch, they drive back to their commissary kitchen/HQ/garage to finish the remaining half of the 16-hour work day. "A good day is 12 hours. A typical day is prep, more prep, serve and then more prep," says Fenske. There is always meat to be braised, stock to be made and an endless amount of produce to be chopped. On Saturdays, if he's not slinging sandwiches at a local festival, he's at farmers markets sourcing meat and produce from local suppliers.

Fenske doesn't really mind the long days, but during the winter break he took time to think about what he can do differently this year. For starters, he intends to streamline the production process to shave hours off the long work days.

"In our first year in business, we were learning from trial and error. We've got some ideas now," he says. He's considering replacing a few regular sandwiches with daily specials – without drastically altering what has turned out to be a concept Edmontonians have eagerly embraced. "We're not changing the quality of our sandwiches and ingredients. That's what keeps people coming back for more." ■

FIND A FOOD TRUCK

Don't wander the streets looking aimlessly for food trucks; instead, diners on the go should head online to track locations and menu options, and, even better, share impressions with eaters and owners alike. "Social media is a great opportunity to create two-way communication and let customers provide immediate feedback," says Ray Bilodeau, marketing instructor at NAIT's JR Shaw School of Business. "Immediately, you can say to the world, 'I love your meatloaf.'"



EAT ST. APP AND WEBSITE

An online extension of the Food Network Canada show of the same name, this app searches for food carts and trucks across Canada and the United States. Without an Android or iPhone? Use the Eat St. website: eatst.foodnetwork.ca/vendors.



FOURSQUARE

Check in at three different food truck venues in any North American city on Foursquare and earn badges and bragging rights. Read or leave comments, and view photos and the number of check-ins at each truck at foursquare.com.



TWITTER

In Edmonton, @driftfoodtruck and @bigcitysandwich are good accounts to whet your appetite.



FACEBOOK

Food truck accounts provide news updates, closures and mouth-watering photos. Facebook.com/driftfoodtruck, for example, also gives followers a behind-the-scenes peak of the business of running a food truck.

BACK BA

SERVES 4

INGREDIENTS

8 - 12 SLICES BACK BACON,
DRY CURED, UNSMOKED
(IRVINGS FARM FRESH)
8 SLICES BRIE CHEESE
(DOUBLE CREAM)
1 GALA APPLE
1 ENGLISH CUCUMBER
SPLASH APPLE CIDER
VINEGAR
SPLASH OLIVE OIL
PINCH SALT AND PEPPER
4 CIABATTA BUNS



CON & BRIE SANDWICH

**ROASTED APPLE
AND CUCUMBER**
(YIELDS APPROXIMATELY
4 - 6 SERVINGS)

METHOD

Preheat oven to 190 C (375 F). Peel and core apple. Cut into thick slices lengthwise (about 12 total). Place in large bowl. Season with salt and pepper. Toss in olive oil. Place on a

baking sheet lined with parchment paper and roast in oven for approximately 10 minutes or until beginning to soften. Set aside and let cool. Peel cucumber, cut in half lengthwise and de-seed. Slice crosswise, same thickness as the apple. Toss together with apple slices and cider vinegar.

FOR ONE SANDWICH

METHOD

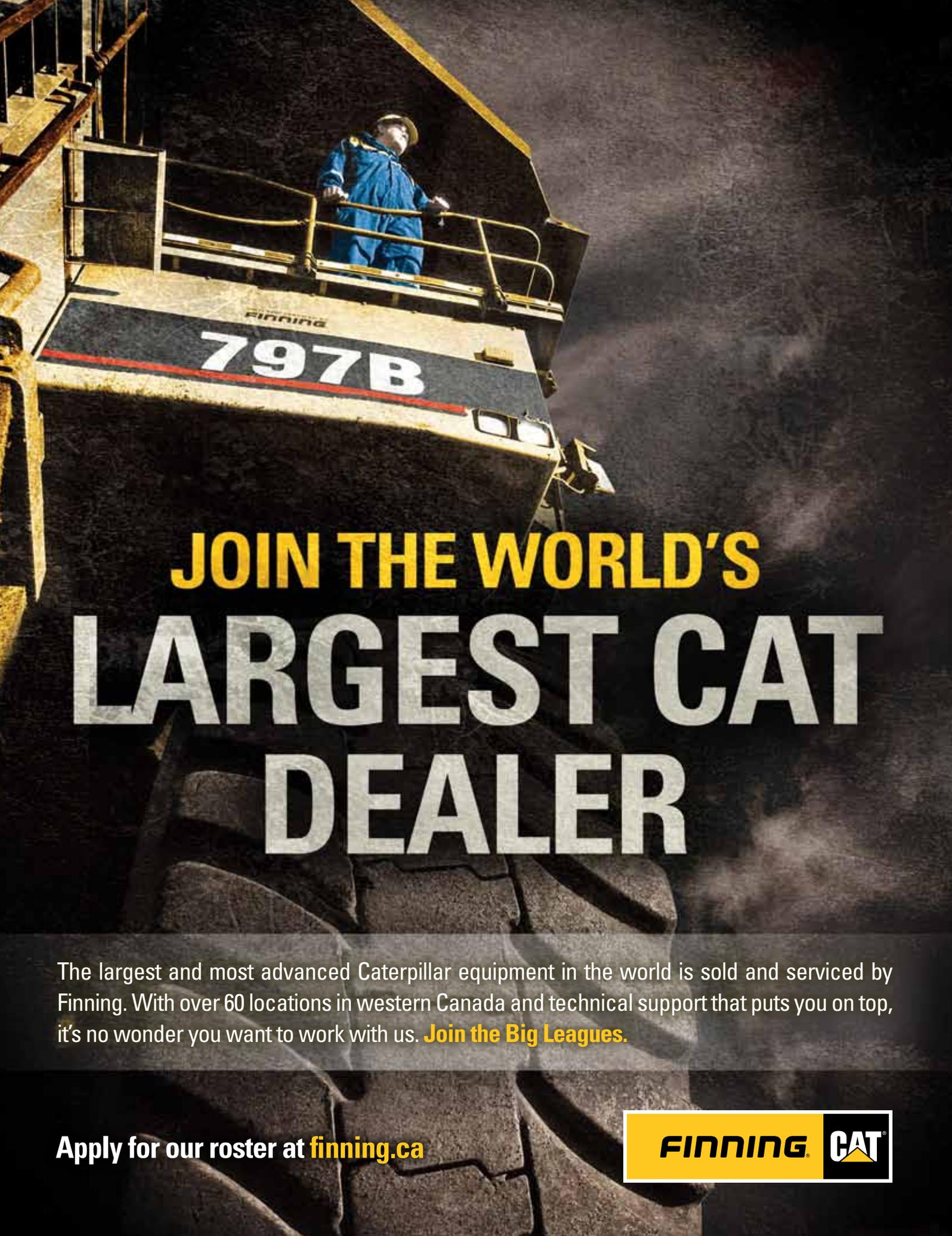
Pan fry 2 - 3 slices of bacon on medium heat, until lightly browned. Arrange tightly in pan to fit the bun size. Top with desired amount of the roasted apple and cucumber mix, then top with 2 - 3 thick slices of brie cheese. Cover and steam to lightly melt cheese. Uncover and, using a flat spatula, transfer ingredients to ciabatta bun.

TIP

Warm your ciabatta in the oven before building your sandwich.

Recipe courtesy of Nevin Fenske, owner and chef of Drift food truck.





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EXTREME CLEAN

PHOTO BY BLAISE VAN MALSEN

JAMES GOSPODYN SEES NAIT'S new clean room as the core of the Nanotechnology Systems program. "That's where we teach students the meat of the program," says the associate chair.

That level of importance explains why you will never, ever, find any meat - or any other object capable of compromising void-like spotlessness - inside this 30-square-metre space.

The extreme tidiness stems from the proportions of the project work students undertake here, as they learn to create minuscule objects currently used in health care, electronics and a variety of other industries. To wrap your mind around the incredible smallness of it all, Gospodyn offers an analogy: "The height of an average adult compared to one nanometre is like comparing the distance from Edmonton to Red

Deer to the thickness of a human hair. It's dramatic."

As such, work can be destroyed by an errant flake of dandruff (hence the coveralls). The room is designed to be 10 times cleaner than an operating room, says Gospodyn. Multiple stages of filtration keep air pure, positive pressure bars dust and other foreign particles, and special soaps keep the place spic and span. Even the light that enters is filtered: yellow shading removes UV waves that can interfere with the fabrication process.

NAIT will graduate its first class in the diploma program, now in its second year, at the 2012 convocation - an enormous achievement in a world devoted to little innovations.

— *Scott Messenger*

Ten times cleaner than an operating room, the clean room (above) is an essential part of NAIT's Nanotechnology Systems program.



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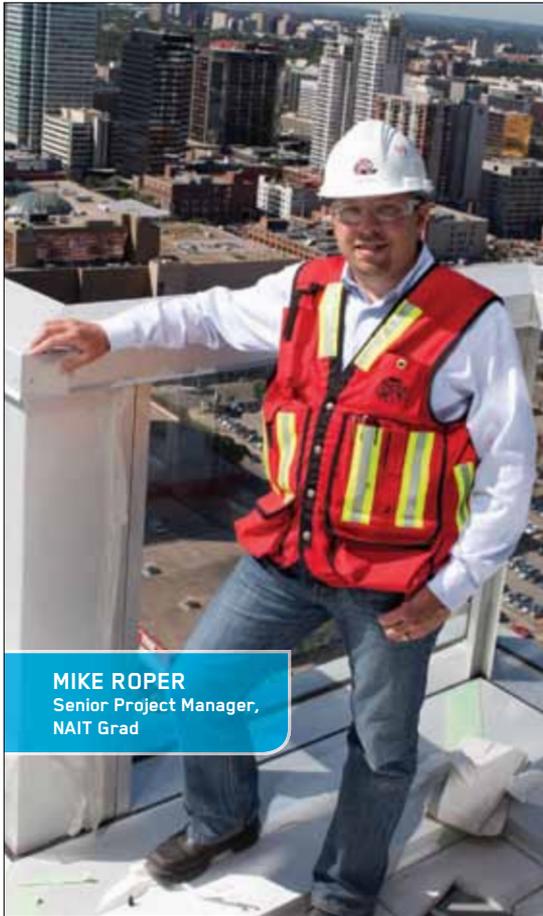
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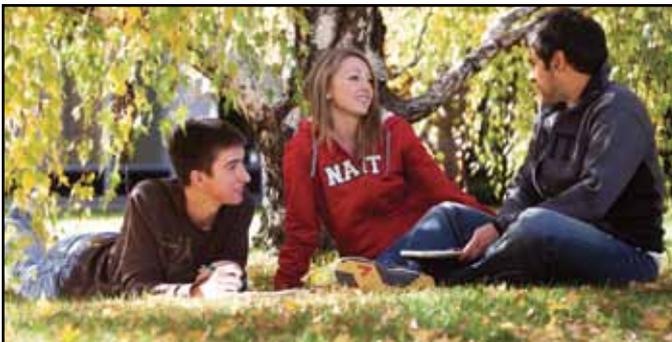
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2

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3

VOLUNTEER

The Alumni Council is looking for volunteers for August to help at Gear Up, our welcome event for new and returning students, and for Open House in October.

Register at www.nait.ca/volunteer, where you can also sign up for a number of other events and volunteer positions.

4

SUMMER CAMPS

Register your child for a summer or hockey camp. Camps run through July and August and are open to ages 5 to 18.

For more information and to register visit www.nait.ca/recreation or call 780.471.7713.

5

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Your success in focus

LIFE IN THE FAST LANE

Crew chief Bernie Fedderly at the O'Reilly Auto Parts National Hot Rod Association Winternationals at Auto Club Raceway in Pomona, California.

Bernie Fedderly (Motor Mechanics '67) cut his teeth racing street cars as a young man in Edmonton and rose to international prominence as a high-performance mechanic when he and driver Terry Capp won the 1980 U.S. nationals in drag racing. But it was his success as a crew chief – a team manager on the racing circuit – that paved the way for his 1996 induction into the Canadian Motorsports Hall of Fame.

— Don Trembath

MY FRIENDS ALL WANTED TO BE DRIVERS. I wanted to make their cars go faster. Gordon Taylor was Alberta's Minister of Highways in the late '60s, early '70s and he supported drag racing. He'd arrange to have highways blocked off so we could race.

I WAS OFFERED A JOB with Larry Minor Motorsports in California as a crew chief for driver Gary Beck in '82. They knew me from our win at the nationals in 1980. We won the National Hot Rod Association Top Fuel Championship in '83. In '92, I joined John Force Racing. We're the most successful team in history, with 17 funny car championships in 22 years.

TO BE A GOOD CREW CHIEF you have to play nicely with others. You need mechanical expertise – that's where my NAIT education came in. You have to make decisions under pressure. We have a budget of \$3.5 million per car per year. I have a lot to do with that as far as maintenance, purchasing and hiring goes. We're adding another car to the team this year, so I'll have four cars to get ready. Our schedule during the race season, from February to November, is really intense. In the off-season, we tear the cars down and rebuild them.

MY WIFE, MARY, AND I have been married 45 years. When we were just starting out, she used to say, "You know, Bernie, this may not be the best way to live." Nothing was guaranteed. We took it a month at a time. Now I say being a crew chief is a great way to keep from getting a real job.

THE SKINNY

- **Pay:** \$150,000 - \$400,000 per year
- **Location:** Opportunities in Canada are limited. The U.S. industry is based largely in Indiana
- **Training:** Mechanical expertise, including high-performance mechanics and mechanical engineering, and hands-on experience
- **Work hours:** Whatever it takes to prepare the cars, race, then move to the next track. Busier weeks can reach 60 hours

HIGH def

FUNNY CAR: A drag racer with a forward-mounted V-8 engine. They go as fast as 515 km/h (320 mph), or, in racing terms, cover 914 metres (1,000 yards) in four seconds.

TOP FUEL: Another dragster. Slightly faster than funny cars, with a longer wheel base and the engine mounted behind the driver.

DRAG RACING: A race between two vehicles from a standing start over a relatively short distance.

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AND THE AWARD GOES TO...

Grads, staff and friends of NAIT continue to amass awards and accolades in everything from industry to innovation to athletics. Here are a few recent winners.

PHOTOS SUPPLIED



Dance Flow is one of Greg Schurman's prize-winning photos.

FANCY PHOTOGRAPHY

The Professional Photographers of Canada honoured **GREG SCHURMAN** (Photographic Technology '92), owner of Schurman Photography and Blootung Studio, as 2011's Commercial Photographer of the Year. In an industry with heavy competition from amateurs, he says, the award "is validating what we're doing."

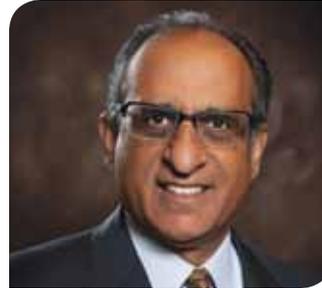
TOO MUCH FUN

NAIT Millwright instructor **GEORGE CHIZEWSKI** (Millwright '85, Machinist '93) received the 2011 Top Instructor Award, Northern Region, from Alberta Apprenticeship and Industry Training. The fourth-year instructor still doesn't call it a "real job," enjoying it too much to call it work.

TOP 40

With its 2011 Top 40 Under 40 list, Edmonton's *Avenue* magazine confirmed NAIT grads are among the city's movers and shakers. Alumni who made the list are

- **JOSH CLASSEN** (Radio and Television '96): Chief meteorologist with CTV Edmonton
- **DANIEL COSTA** (Culinary Arts '05): Chef and owner, Corso 32
- **JASON GREGOR** (Radio and Television '01): Host of the *Jason Gregor Show* on Team 1260
- **PETER OSBORNE** (Architectural Technology '99): Senior associate with GEC Architecture
- **SEAN RAYNER** (Business Administration '01): President of Vet's Sheet Metal
- **JAVIER SALAZAR** (Photographic Technology '09): Owner of Javier Salazar Photography and vice president of programs for Junior Achievement of Northern Alberta & N.W.T.



FRIEND OF NAIT

SHIRAZ JIWANI, founder of Sherwood Park-based Aman Building Corporation, is NAIT's 2011 Distinguished Friend of the Institute. The award goes annually to individuals or organizations that have demonstrated commitment to NAIT. Aman has invested in the planned Centre for Applied Technologies, the Hokanson Centre for Culinary Arts and other annual projects that support student success.

HOCKEY HEROES

The 1984-85 **OOKS MEN'S HOCKEY TEAM** will be inducted into the Alberta Hockey Hall of Fame, 27 years after completing a perfect season. The team didn't lose a game in the regular and post-seasons and won the Alberta Colleges Athletic Conference (ACAC) and Canadian Collegiate Athletic Association championships, becoming the only Alberta post-secondary men's hockey team to record such a feat. During that streak it set several ACAC records that still stand, including most goals (222), most assists (343), most points (565), most wins (25) and fewest losses (0). The team will be recognized at the Hockey Alberta Awards Gala, June 9, in Red Deer.

BIG WINS

DAN KAI won his fourth Canadian Collegiate Athletic Association (CCAA) national badminton championship - one of five Ooks to earn medals at the tournament this March at Thompson Rivers University. He was also named CCAA's 2012 Men's Badminton Player of the Year. **JORDAN RICHEY** was named Badminton Coach of the Year. Under his leadership, the team has topped the Alberta Colleges Athletic Conference four straight years.



A BEAUTIFUL GAME

NAIT'S MEN'S AND WOMEN'S OOKS SOCCER TEAMS are among Canada's top collegiate-level squads. The men won gold in November at the Canadian Collegiate Athletic Association (CCAA) national championship in Quebec City. The women earned silver. Also, NAIT coach **SERGIO TEIXEIRA** was named CCAA's 2011 Women's Soccer Coach of the Year, while head coach **JEFF PAULUS** was named a 2011-12 Men's Coach of the Year by the Alberta Colleges Athletic Conference.



PLENTY OF PARKING



NAIT'S FIRST MAJOR DEMOLITION in 20 years took place in July 2011 with the M Building making way for a new parkade.

The unassuming, one-story building at the east end of campus was originally built in 1955 as a Simpson-Sears service station. It closed when Kingsway Mall opened in 1976, and NAIT acquired the building for storage. In 1983 it was renovated to house the Partsman program and the Power Engineering Technology program, which included a boiler lab, classrooms and offices.

Power Engineering Technology instructor Denis Côté enjoyed his time in the building, and "loved the large floor-to-ceiling windows, which let in lots of sunlight."

It was through those big windows that Côté was able to view the local wildlife. He remembers often being startled by a thump against the glass. A neighbourhood hawk would chase pigeons that would attempt to

take cover under the building's eaves, but ended up crashing into the windows and becoming the hawk's lunch.

Coming this fall, the site of that plain, squat building with the big windows will be occupied by a new 986-stall parkade that will play a key role in the institute's long-term development.

Côté now works in the state-of-the-art Centre for Power Engineering Technology, but will always fondly remember working in the M Building. "We had a great coffee room," he says, "and there was always parking."

— Fiona Bensler



Top, NAIT's M Building, 1977; above, rechristened and repurposed, 1984; below, demolition, 2011.

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WE ARE NAIT@



50



Early in the 1960s, a small furry ookpik was given to the fledgling NAIT by Indian Affairs, and became our mascot. Over the years, a lot has changed.

The little ookpik embraced its heritage as a powerful snowy owl, transforming into the vibrant NAIT Ook, now synonymous with success. And from our beginnings as a trades school, NAIT evolved into one of Canada's leading polytechnics, delivering relevant, hands-on education in business, health care, science and technology.

One thing hasn't changed: NAIT's ability to provide the skills that help our community and our region grow and prosper. Rock on, ookpik!



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