

Gene Editors Altering DNA to cure disease / **Tree Tents** Camping redesigned / **Rap Dreams** An alternative to gangs
Followings U of T's social media stars / **Flappers in the Quad** Convocation 1930 / **Children's Crusader** Keeping kids safe

UofT Magazine

SUMMER 2016



Generation LGBTQ
“It’s important to share
our experiences”

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A man in a red shirt and glasses is standing in a rooftop garden, tending to tall corn plants. The garden is filled with various green plants and vegetables. In the background, a city skyline with several skyscrapers is visible under a clear blue sky. A yellow pipe runs diagonally across the foreground. The word "BOUNDLESS" is written vertically in large white letters on the right side of the image.

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Summer 2016

Volume 43, No. 4



40 Followings

Want to get your creative work in front of a large audience? Learn from these six U of T social media stars

BY SCOTT ANDERSON AND STACEY GIBSON

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U of T scientists are using a powerful new technology to alter DNA and possibly cure disease

BY MARCIA KAYE

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For trans students at U of T, the fight for rights and equality is about much more than just washrooms

BY MARGARET WEBB

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All correspondence and undeliverable copies:
U of T Magazine, 21 King's College Circle,
Toronto, ON M5S 3J3

U of T Magazine, with a circulation of
320,000, is published quarterly by University
Advancement. All material is copyright © 2016
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may be reprinted with permission. Alumni
receive the magazine free of charge. Donations
accepted at magazine.utoronto.ca under
"Support Us," or send a cheque payable to the
University of Toronto at the above address.

Publications Mail sales agreement

No. 40065699

Non-profit postage paid Buffalo, NY

Permit No. 3415. U.S. Postmaster send address
corrections to P.O. Box 29, Lewiston, NY 14092

Printed in Canada by TC Transcontinental
Printing Inc. ISSN 1499-0040

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Departments

I just loved the absurdity of Drake being a UTSC student

—The anonymous artist and UTSC student who created the Instagram account "U of T Drizzy," p. 44



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Letters



While a purely academic career may be the currency of the day, what we need for the future is more fluid movement between “town and gown.”

MIKE TREMBLAY
PhD 1986, SMARDEN, ENGLAND

From Gown to Town

I agree with Suzanne Akbari’s comments at the end of “Life after Grad School” (Spring 2016). She says that the transferable skills one learns in grad school are the ability to read the research literature; assess findings and translate them for application to real-world problems; and develop conceptual models that organize and explain complex realities in ways that promote new thinking and understanding.

While a purely academic career may be the currency of the day, what we need for the future is more fluid movement between “town and gown.” I sense that Canadian universities are disinclined toward this. What we need is more commercialization of research, better industrial innovation and a deep and abiding engagement with problem-owners.

MIKE TREMBLAY
PhD 1986, SMARDEN, ENGLAND

Making Grads Market-Ready

To clarify some points in “Life after Grad School,” the biochemistry graduate professional development course is a quarter-credit with official marks. I teach the same course in the immunology department as a required component of its graduate seminar series. Immunology students receive the same feedback, but the grades are not recorded on a transcript. Students

in both departments who take the course receive individual consultations, followup sessions and guidance throughout their graduate training. The goal is a job or post-doc offer (depending on their career interests) before they graduate or defend their thesis. I am happy to bring my years of biotech experience and my scientific network to help prepare trainees to be market-ready!

NANA LEE
PhD 2000, TORONTO

Band-Aid Solution

Recently, I attended a conference roundtable entitled “Pursuing Alternative Career Paths” where we were advised to drop the PhD qualification and “Dr.” title from our curriculum vitae if we expected to be employed outside of academia.

In this time of deep crisis in higher education, the cheerful picture painted in “Life after Grad School” is naive and offensive to those of us who laboured intensely to obtain a PhD degree and find ourselves in a precarious job situation because universities are employing sessional instructors. The article dismisses this truth with “it’s a permanent fact that there aren’t nearly enough tenure-track teaching jobs for everyone who might want one,” as if our need to be academic professionals were a whim.

I don’t expect very much from a university magazine, but shame on you for belittling our intellectual work and suggesting Band-Aid solutions to a devastating employment scenario. The systemic problem of exploited PhD graduates is not going away with “career-building workshops” so please consider writing an article that addresses the real problem: corporate greed ruling universities.

DR. AIDA JORDÃO
PhD 2014, TORONTO

Locke Rowe, dean of the School of Graduate Studies, responds: U of T is committed to helping its graduate students succeed – in whatever career they choose. We’re working with faculties and individual departments to create professional development courses and other opportunities that will help students discover, explore and prepare for a range of career options. Far from belittling the intellectual work that our PhD students undertake, the article shows that there’s a wider scope of application for their skills and expertise than has traditionally been understood.

Doubtful Models

The Q&A with law professor Jutta Brunnée (“Cooling Off,” Spring 2016) begins with the question, “Will the Paris climate accord succeed where Kyoto didn’t?” To be meaningful, this question must be preceded by another question: “Is the science settled on the impact of man-made carbon dioxide on ‘global warming?’” It is not. The first question is irrelevant until the second question is definitively answered. Considering the vast number of variables that affect “climate change” in

varying degrees, at varying times, with varying results, I doubt that our modelling systems will ever achieve this impossible feat with any degree of accuracy or predictability.

GENE BALFOUR
THORNHILL, ONTARIO

All We Need Are Plants

Regarding “Could Carbon Dioxide Be the Solution to Climate Change?” (Spring 2016): CO₂ is an “arch-villain” only to the media, which thrives on exaggeration, and to special interest groups. Nature provides the means by which the carbon dioxide in the atmosphere is reduced – and it is plants. The chlorophyll of the plants, catalyzed by sunlight, absorbs carbon dioxide and heat, and produces oxygen.

C. S. JAMES
BASc 1951, NIAGARA-ON-THE-LAKE, ONTARIO

Educating Investors

Regarding your article about Prof. Anita Anand, who holds the new chair for investor rights (Spring 2016): When I enrolled at Victoria College in 1958, the federal corporate tax rate was 40 per cent. Companies earned a fair profit and had ample capital to invest in Canada. Today, the federal corporate tax rate is 15 per cent. In the intervening years, CEOs have used the difference to outsource almost all of our manufacturing jobs to Asia and to reward themselves with grotesque salaries. Instead of researching

investor rights, Prof. Anand should focus on educating investors and corporate executives to curb their greed and assume their civic responsibility to pay their fair share of taxes.

BOB STEVENSON
BA 1962 VICTORIA

Of Sound Mind

The simple yet profound concept “a sound mind in a sound body” has been with us for many centuries, and I am pleased to see that U of T has recently established the Mental Health and Physical Activity Research Centre to further develop our understanding and applications of this concept (“Lift Weights to Lift Mood?” Spring 2016).

SIMON HALL
MEd 1982, ST. CATHARINES, ONTARIO

A Revolutionary Idea

I’ve been following Airvinci’s backpack helicopter on Facebook for a few years now but didn’t realize the hero behind the product is a fellow U of T alumnus (“The Air Up There,” Spring 2016). As a skydiver, I would love this as I could get myself to the right altitude for my jumps. It’s quite revolutionary!

LEVANT TINAZ
BSc 1988 UTSC, TORONTO

A Few Yards Short

Bruce Kidd deserves credit for his achievements as athletic director at U of T (“A Life in Blue and White,” Winter 2016). But he certainly fell short

in promoting Varsity Blues football. In 2007, the Varsity Blues set a college football record by losing 49 straight games, which was an embarrassment for former Blues players on championship teams. Even prestigious academic schools such as the Ivy League colleges and Stanford University have strong football commitments that build school spirit and fund other college athletics.

NICK SOPINKA
BA 1959 VICTORIA, KIMBERLEY, ONTARIO

Acclaim for Margaret MacMillan

“Milestones” (Spring 2016) did not identify Margaret MacMillan as a former history professor at U of T. What is truly astonishing, however, is your failure to name her *chef-d’oeuvre*, the brilliant and award-winning *Paris 1919*, which brought her such international acclaim!

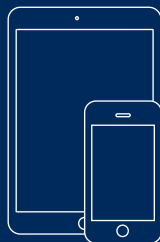
MARGARET MAY FOURNIER
BA 1942 TRINITY, SAULT STE. MARIE, ONTARIO

Clarification

The caption for the picture on pp. 34–35 of the spring issue was inadvertently removed during production. The image shows medical students performing “Snow White and the Seven Achondroplastics” as part of Daffydil Night in December 1948.

Write to us!

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Keep Learning

U of T's School of Continuing Studies is a powerful engine of opportunity



AT THE HEART of the University of Toronto's downtown campus sits a modern yet unassuming four-storey building. Behind its glass facade lies a powerful engine of opportunity that attracts 30,000 learners a year seeking to upgrade their skills and acquire new ones.

An integral part of U of T, the School of Continuing Studies reflects the university's extraordinary breadth and depth of scholarship by offering more than 600 courses in a variety of fields. These courses are taught by gifted instructors to people across the Toronto region (and, increasingly, to people online around the world) who wish to continue learning, regardless of age.

Enrolment at the school has more than doubled in the past seven years and, according to an EnviroNics survey, 97 per cent of learners say they'd recommend the school to others – a result that Marilyn Booth, the school's dean, credits in large measure to the quality of the school's instructors and to a course list that's laser-focused on learners' needs.

A remarkable asset for the university, the school also serves an important function within the city's growing immigrant communities. Onik Hoque, for example, arrived in Toronto from Bangladesh with a business degree but could only find clerical work. Through the school, he took professional courses that enabled him to land a job as a financial analyst.

Some 75,000 immigrants to Canada each year choose to settle in the Toronto region. Most, like Hoque, hold a degree from their home country but are unable to secure employment in their chosen field. This amounts to a massive loss of economic potential for Canada, estimated at \$11 billion a year. Helping people like Hoque achieve their dreams helps Toronto – and Canada – succeed.

And it's not just new Canadians who benefit from the school's unique courses and certificate programs. Many learners, U of T alumni among them, enrol to pursue an interest, such as creative writing or art history. Others wish to fill gaps in their skill set so they can switch careers. Rapidly advancing technology in most fields means that

even those who stay in one job must update their skills on a frequent basis. As Booth puts it: "You have to have your head in the sand right now if you think you can't keep learning!"

The school takes a highly proactive approach – closely monitoring job trends to create courses in burgeoning fields, and retiring offerings that are no longer relevant. This year alone, 30 out of 80 certificate programs are either new or significantly enhanced. Booth and her staff also work with more than a dozen professional associations to match the skills taught through the school's certificate programs to those that employers desire.

By virtue of being highly market-focused, the school acts as a test bed for educational innovation. It offers one-third of its courses online, so learners can take them whenever and wherever they choose. And hybrid course options combine online and in-classroom instruction so learners can meet their peers and build new networks of like-minded individuals.

The school recognizes that people are busy with work and family responsibilities. Its courses are short and modular, so learners can put together the curriculum that suits them best, and apply their knowledge sooner. Arash Zarrine-Afsar, for example, an entrepreneur who had already earned a PhD at U of T, found specific courses that enabled him to devise a successful business strategy for his startup without having to take a full business degree.

This June, some 13,500 U of T students crossed the stage at Convocation Hall to receive their degree. As they reflect on their achievement, we encourage them – and, indeed, all alumni – to follow a path that keeps learning central to their lives. While convocation may mark the end of full-time academic study, it can also herald the beginning of a new relationship with the university through the School of Continuing Studies. Classes are offered at all three campuses, and graduating U of T alumni receive their first course for free. Who knows what opportunities could arise?

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Meric Gertler

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Calendar

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Arnaud Maggs' *After Nadar: Pierrot the Photographer*, 2012

TO JULY 30

Counterpoints: Photography Through the Lens of Toronto Collections

This exhibition at the Art Museum at the University of Toronto features more than 100 images from private collectors, and spans nearly two centuries. Artists range from Weegee to Anishinabe-Canadian artist Rebecca Belmore and photographer Arnaud Maggs – whose *After Nadar: Pierrot the Photographer* (above) is a self-portrait.

Free. The Art Museum at the University of Toronto, 7 Hart House Circle. Tues. to Sat., 12–5 p.m.; Wed. 12–8 p.m. 416–978–1838, artmuseum@utoronto.ca or artmuseum.utoronto.ca.

Alumni

June 16

Calgary

BizSkule Presents: Engineering Moneyball in Hockey, Baseball and Beyond. Free. 6:15–9 p.m. Bennett Jones, 4500 Bankers Hall East, 855 – 2nd Street SW. my.alumni.utoronto.ca/bizskulecalgary.

June 16

Hong Kong

Leadership in Education: Maximizing Potential with engineering professor Doug Reeve. Free. 6–9 p.m. The Asia Society Hong Kong, 9 Justice Dr., Admiralty. Register at alumni.utoronto.ca/hongkongleadership.

June 23

New York, NY

U of T Where You Are featuring Prof. Dilip Soman of marketing at Rotman and author of *The Last Mile: Creating Social and Economic Value from Behavioral Insights*. Free. 6:30–8:30 p.m. Lotte New York Palace, 455 Madison Ave. Register at alumni.utoronto.ca/events/regional.

June 25

Kortright Centre, Woodbridge

Alumni and Friends Summer Hike includes a guided tour through York Region's trails. \$8. 1–3 p.m. 9550 Pine Valley Dr. Register at alumni.utoronto.ca/events/regional.

July to September

Soldiers' Tower

Soldiers' Tower Carillon Recitals.

The 51 bells of the war memorial will ring out for one-hour recitals. Seating will be provided at these outdoor events. The Memorial Room will also be open. Free. Fri., July 1, 1–2 p.m.; Wed., Aug. 3, TBA; Wed., Aug. 10, TBA; Mon., Sept. 5, 7–8 p.m. 7 Hart House Circle. 416–978–3485, soldiers.tower@utoronto.ca or alumni.utoronto.ca/tower.

July 17

Oakland, California

Alumni and Friends Oakland A's vs. Toronto Blue Jays Game.

\$30 (includes ticket and \$10 food voucher). 11 a.m.–4 p.m. Oakland A's Coliseum, 7000 Coliseum Way. Register at alumni.utoronto.ca/events/regional.

July 23

Vancouver

Alumni and Friends Dragon Boating Experience. Enjoy

a fun Dragon Boat lesson. \$25. 10 a.m.–12:30 p.m. Creekside Olympic Community Centre, 1 Athletes Way. Register at alumni.utoronto.ca/events/regional.

Exhibitions

June 20 to Sept. 9

Thomas Fisher Rare Book Library

Reading Revolution: Art and Literacy during China's Cultural Revolution. Mon. to Fri.,

9 a.m.–5 p.m. 120 St. George St. 416–978–5285.

Lectures and Symposia

August 8–12; 15–19

Knox College

Knox College Summer Program.

These morning lectures cover such topics as “What Lies Beneath: Our Planet Earth” with Prof. Emeritus Pierre-Yves Robin. One course: \$130; multiple-course discounts available. 59 St. George St. knox.utoronto.ca/summer-program, 416–946–8425 or susan.gaby.trotz@utoronto.ca.

Sports

August 20 and 21

Varsity Stadium

Old Four Tournament.

The Blues welcome McGill, Queen's and Western men's and women's soccer players. Free. 299 Bloor St. W. For tournament schedule, please visit varsityblues.ca.

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(Peru)
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Apr 30–May 10
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(Holland, Belgium)
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From \$2,395 US + air

**Odyssey of Ancient
Civilizations: Adriatic
& Aegean Seas**
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May 8–16
From \$4,835 US + air

Mediterranean Masterpiece
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Spain)
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Cruise Europe*
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Austria, Slovakia, Hungary)
May 29–Jun 13
From \$4,495 US + air

In the Wake of the Vikings
(Scotland, Norway, Denmark)
Jun 1–9
From \$5,035 US + air

Baltic Sea Countries
(Denmark, Poland, Estonia,
Russia, Finland, Sweden)
Jun 8–17
From \$6,235 US + air

Pearls of Italy
Jun 10–21
\$4,495 US + air

Haida Gwaii
(Canada)
June 27–Jul 4
\$6,185 CAD + air

**Alumni Campus
Abroad: Switzerland**
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**Alumni Campus
Abroad: Normandy***
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Jul 14–21
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**Alumni Campus
Abroad: Rhine River**
(Germany)
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Portrait of Ireland
Aug 7–18
\$3,995 US + air

**East Greenland:
Northern Lights**
Aug 16–29
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Aug 22–Sep 4
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BOUNDLESS



Life on Campus

“What could be more fun than robots playing soccer?”

Prof. Francisco Estrada

p. 13

Jessica Phillips



Antarctica Bound

Rhodes Scholar Jessica Phillips wants to help protect the continent’s ecosystem – and its penguins

FOR JESSICA PHILLIPS, it all started under water, six years ago, off the coast of Belize.

“There were sea turtles swimming under me, and reef sharks all around,” Phillips recalls. “It was a really pristine area, and the coral reefs were so beautiful. I thought there should be more places like this: undeveloped, the way they originated. I wanted to protect more species, more areas. That is ➤



Urban dance comprises such styles as hip hop, street jazz and house, says Kangbin Zhou, president of U of T's Urban Dance Revolution

➤ how I became interested in wildlife biology.”

And this is how the native of Hong Kong started an academic career that led to her being named one of three 2016 Rhodes Scholars from the University of Toronto. “Jessica Phillips will be following in the footsteps of prior UC Rhodes Scholars, such as former U of T president David Naylor and former Ontario premier Bob Rae,” says University College principal Donald Ainslie. “And the research she does at Oxford on climate change will continue the UC tradition of using academic studies to make the world a better place.”

The other two undergrads who will be attending the University of Oxford as Rhodes Scholars next October are James Flynn, a political science and economics major at Trinity College, and Kaleem Hawa, who studied international relations and global health at Trinity. All three received their U of T degrees during Convocation ceremonies in June.

Phillips, 22, will pursue a DPhil – the Oxonian PhD – in zoology at Merton College. During her BSc studies at U of T, she specialized in ecology and evolutionary biology, with a major in biodiversity and conservation and a minor in psychology. Her particular interest is the Antarctic – specifically, in protecting it. “The ecosystem is fragile,” she says. “Development can have drastic consequences. Species could interact with the effects of climate change.”

She expects her sojourn in Oxford to include a field trip to Antarctica to study gentoo, chinstrap and emperor penguins and observe how reduced ice cover and increased fishing affect their distribution and ability to thrive.

Phillips was raised mostly in Beijing; she is the daughter of psychiatrists practising in central China. She is also accustomed to travel: by her second year at the University of Toronto, she was working with Prof. Martin Krkosek at the Salmon Coast Field Station off Vancouver Island. Last summer, Phillips was involved in the study of subarctic hummingbirds in Churchill, Manitoba.

Although she spoke English at home – her father is Canadian, her mother American – Phillips was schooled in Mandarin until she was 16, when she enrolled in an international school in Shanghai. “I wanted to start learning scientific terms in English,” she says, “so it would be a less difficult transition.” Phillips has maintained her links to China as a member of the U of T Mandarin Debate Association.

A university as diverse as U of T was a perfect place for Phillips. But it was the academic environment that made the biggest difference. “My time at U of T has helped me identify my passion and given me the means to pursue it,” she says.

– ARTHUR KAPTAINIS

Read about James Flynn and Kaleem Hawa at news.utoronto.ca.



IN CASE YOU MISSED IT

Ain't No Half-Steppin'

In March, hip-hop dance crew 9M5 took to the Hart House Theatre stage in the final freestyle round of U of T's first Urban Dance Competition. Battling against two remaining crews, 9M5 locked and popped to Justin Bieber's "No Sense" – and their sharp formation and expressive personalities snagged them the win. “They just *killed* it in freestyling,” says Kangbin Zhou, president of Urban Dance Revolution (the U of T club that put on the event) and a PhD student in pharmacology.

Five teams made up of U of T students competed in the event. Similar to the TV show *So You Think You Can Dance*, audience members and a panel of judges were involved in the voting.

Although the crews' perfected routines may have looked seamless, the training was long and arduous. Getting the formation precise – everyone in perfect sync – in a hip-hop crew is the tricky part, says Zhou: “About one second [of performance] equals one hour of training or more.”

– STACEY GIBSON



U of T Archives' roots can be traced back to the 1920s, when U of T-related photos and documents began collecting in the cupboards of what is now the Gerstein library



U of T Archives is on Facebook, Twitter and Instagram. What are you trying to accomplish with your social media platforms?

The number one message is: We exist. A lot of people don't know what the U of T Archives is. On April Fool's Day last year, I did a fake post that we had turned the Reading Room into a cat café, and I photoshopped all these cats into a Reading Room picture. It was the university archivist's idea; we're all cat-obsessed. It was our most popular post. It doesn't do a lot of education, but because it got so many shares it was good for our profile.

I also try to showcase all of the resources we have, to encourage people to visit. We have 300,000 photos, but we also have 11 kilometres of textual records. We're a place where someone can come and write their thesis based on the material we have.

And it isn't just promotion: we're making U of T's history more widely accessible. Rather than waiting for researchers to come to us, we're pushing it out there to them.

What is your favourite part of your job?

It is the outreach. Recently, a student from the Faculty of Medicine came in whose grandmother had also been a student. I was able to pull her grandmother's file: it had newspaper clippings, photos of her wedding day and a document that she had signed. She could connect to her own family's experience through the records. I like those moments. It's nice to be able to put those things in front of people and watch them get excited about it.

I think sometimes people feel intimidated by the archives.

Can you counteract this at all on social media? I share photos of our space and the day-to-day of what we get up to in order to demystify the archives. When we had to move the Dunlap Observatory's giant scrapbook up to the observatory for its anniversary, I took a time-lapse video of the archivists wrapping the book up with bubble tape. I want to do more behind-the-scenes posts. It puts a human face on what we do.

P.O.V.

Where Every Day is Throwback Thursday

Karen Suurtamm helps bring the U of T Archives to students raised on social media

Can you describe your job? I'm responsible for acquiring records at the archives and preserving, arranging and describing them, and making them accessible to researchers. The U of T Archives collects university records from offices, faculties and governance bodies – and from individuals and organizations associated with U of T. I work closely with faculty members who are donating their papers. I recently worked on physicist and metallurgist Ursula Franklin's records, and philosopher Ian Hacking's records are next on my list. I also do social media and other outreach, like class instruction.

THERE'S A COURSE FOR THAT!

Robots That Play Soccer



Those who love soccer, think robots are cool and have never lost their fondness for Lego would no doubt enjoy U of T Scarborough's computer science course "CSC C85: Embedded Systems."

For 12 weeks, about 60 students work in teams to build tiny robots, using such tools as standard Lego robot kits. Then, they pit their robots against each other in an actual match on a miniature soccer field.

"Embedded systems" refers to anything with

a processor designed for a specific purpose – from a smartwatch to an airliner. "Robots are a prime example of embedded systems," says Prof. Francisco Estrada, who designed the course. "And what could be more fun than robots playing soccer?"

Estrada's aim is to give students practical experience in developing software, and help them find work in the ever-expanding embedded-devices market.

– LAURIE STEPHENS



Facebook has 1.09 billion daily users as of March 2016 – and 84.2 per cent are outside the U.S. and Canada, according to company stats



Campus Reflections

It's one of the most iconic views of U of T's St. George Campus. And it's the last glimpse of campus that each of the university's students see before they become alumni. Cynda Fleming (MMus Perf 2002, MMus Ed 2005) is a doctoral student in the Faculty of Music who received her second master's degree at Convocation Hall about a decade ago. She walks through front campus

at least once a week and often stops at University College, where her parents met in 1958. Fleming sometimes takes pictures of UC, but on this sunny morning she turned south and captured Con Hall instead, with the city growing up behind it. "There's something really special about that view," she says. At home, a photo app helped her reimagine the field as a reflecting pool. - SCOTT ANDERSON

SOUND BITES

U of T's LGBTQ Positive Space campaign recently turned 20. What has it meant to you?

Welcoming students to a truly inclusive space when they arrive for their first year!

@dylkim

In positive space, voices are heard, differences are appreciated and intersectional communities are built.

@Lydiainlovekey

It's meant being in a warm and welcoming space for most of my university years.

@StephanieSawah

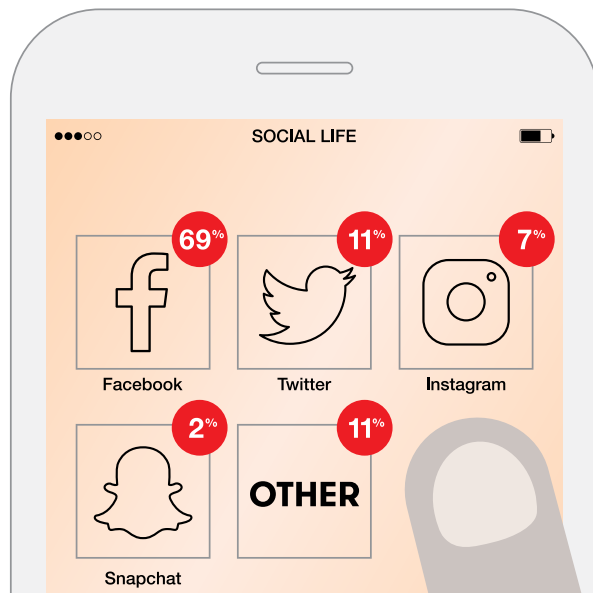
Join the conversation at twitter.com/uoftmagazine.

Poll | What social media platform do you spend the most time on?

While Facebook's pervasiveness might feel annoying at times, it's one of the main reasons U of T students use it: loved ones often have an account, regardless of age or location. "I get to connect with my grandparents and my aunts and uncles who may not use other social media platforms," says Paidia Magumbe, a fourth-year anthropology student. Others like its multi-functionality: Jenny Wang, a fourth-year commerce and English student, uses it not only to share photos and talk online, but to participate in study groups.

Luke Kyne, a second-year chemistry student, prefers Instagram as "it's so easily accessible and because of its simple, minimalist layout." Other platforms mentioned include VK, the largest social-networking service in Russia; the micro-blogging platform Tumblr; and IMGUR, an image-sharing site. - SALLY CHOI

This highly unscientific poll of 100 U of T students was conducted at Sidney Smith Hall on St. George Campus in May.



“We Can Do Better, We Will Do Better”

U of T is creating a new centre to help prevent and respond to sexual violence

U OF T IS CREATING a new Sexual Violence Prevention and Support Centre with locations on all three campuses, as part of an action plan to prevent and respond to sexual violence.

It is one of several measures outlined in the plan released in April by President Meric Gertler and Vice-President and Provost Cheryl Regehr. “People need to feel safe on our campuses,” Gertler says. “The university is committed to doing everything possible to create that safe environment and to make sure the right supports are available.”

The new centre will be responsible for services for those affected by sexual violence and will also provide staff training. It is expected to be up and running by January 2017.

The university is also creating a new stand-alone policy on sexual violence; Mayo Moran, professor of law and Trinity College provost, is leading the advisory panel on this issue. A tri-campus Sexual Violence Climate Survey – intended to provide insight about experiences of sexual violence on campus and the use of related services and support – is also in the works. Sandy Walsh, vice-provost, students, is heading its advisory board. A third panel is advising on the education



and prevention of sexual violence. Led by Gretchen Kerr, acting dean of the Faculty of Kinesiology and Physical Education, it will be responsible for co-ordinating and updating education and training programs. All three panels include undergraduate and graduate students, faculty and staff from all three U of T campuses.

“We will not tolerate sexual violence and we will work to improve both our prevention and our response efforts, guided by experts and with input from members of our community,” says Regehr. “We need to do better, we can do better, we will do better.”

WHY I GIVE

Drumming Up Support



Beverley Johnston

Beverley Johnston (BMus 1980) recently made a donation to the Faculty of Music to create the Gerald Harlan Johnston Fellowship, named for her late father. The fellowship is the first at U of T to support a Doctor of Musical Arts student in the faculty’s percussion program, where Johnston herself teaches.

Beverley: My father helped me financially while I was at university. The fellowship is a way of acknowledging all that he did for me. He was a chemist. He established a company in Quebec that did environmental testing. He was a good business person and worked very hard. I admired him.

There were no professional musicians in our family, but my parents appreciated music. They were concerned about me pursuing it at university, though, because it can be an unstable career. I must have inherited their focus and determination. I was also fortunate to have studied with Nexus percussionist Russell Hartenberger, who just retired from U of T. He was like a second father to me.

My hope is that the fellowship will ease a student’s financial tension. It’s difficult to focus on your studies when you have to have a job to make ends meet.

Art's Healing Power

A residential schools assignment led student Lisa Boivin to take up digital painting



IN 2014, Lisa Boivin was researching an assignment on the legacy of Canada's residential schools in an Aboriginal Studies class at U of T. She had just reunited with her biological father, a residential school survivor whom she had been taken from as a baby. "I couldn't write about it," says Boivin, who was adopted by a non-indigenous family, a widespread child welfare practice from 1960 to the mid-'80s. "I was paralyzed by intergenerational trauma as I learned about intergenerational trauma." So she turned from words to images, and her ideas flowed.

The resulting digital painting, "Cutting Away Culture," is her imagined representation of her grandmother as a child, curled up on a bed as two nuns cut off her hair. "A haircut was the first step of a continual cultural separation,"

says Boivin, a member of the Deninu K'ue First Nation in the Northwest Territories and a U of T bioethics student set to complete her degree this summer.

Since then, she has continued to produce digital paintings that illustrate Canada's historical relationship with indigenous people. Boivin creates her paintings by using her finger on a mouse pad like a brush on a canvas. She always starts on a black canvas, symbolizing colonial violence, and then paints vibrant flowers, fruit, animals and human figures on top to highlight the resilience of indigenous culture.

Boivin also uses her art to illuminate bioethical issues that arise in clinical care ranging from stereotyping, to the conflict between bioscientific medicine and indigenous teachings. "There are certain stories that cannot be confined in the structure of printed words," says Boivin.

Though many of her works contain stark images of racism, her aim is to spark both reflection and reconciliation among health-care professionals, academics and indigenous peoples. "Understanding the lingering oppressions of colonialism will help to build safe clinical relationships between practitioner and patient," she says.

Boivin's work appeared on the cover of *Ars Medica*, a journal that explores and examines what makes medicine an art. Her painting "Sharing Bioethics" is on display at the Faculty of Medicine. She is also a guest lecturer at the faculty, showcasing her art and the issues it raises for doctors. This fall she will begin an arts-based thesis in the rehabilitation sciences master's program, exploring indigenous perspectives on disability, which will include a critique of colonial practice, thought and diagnosis.

Though her love of drawing and painting started in childhood, Boivin says racism stifled her creativity for a long time. "I wasn't able to fully develop that part of me until now." She has no formal artistic training. "My painting stems from the knowledge of the ancestors. It is a translation of the beauty and resilience of indigenous peoples and cultures." - MEGAN EASTON

WHAT'S IN A NAME?

Luella Massey Studio Theatre



The Luella Massey Studio Theatre is one of three venues run by the Faculty of Arts and Science's Centre for Drama, Theatre and Performance Studies. Located on Glen Morris Street, the building was called the Glen Morris Studio Theatre until 2014 when it was renamed after Luella - more fondly, Lou - Massey.

Massey, who passed away in 2013, was a mainstay of the drama centre as its facilities and box-office manager for 35 years. She handled everything from stage managing and event co-ordinating, and always helped students in need.

Rebecca Biason, who became Massey's administrative successor and orchestrated the renaming, recalls Massey making her tea when she saw her swamped in work as a graduate student. She even offered Biason a summer job at the drama centre when she knew she needed one. Massey was always there to listen to students, offer a ride home or even talk about the history of the centre with them. "She was like a den mother to all of us," Biason says. "[She] was the one constant figure in times of change."

- SALLY CHOI



The Paralympics has its origins in an archery competition for Second World War veterans in Stoke Mandeville, England, in 1948



Kylie Masse

Ruling the Pool

Olympic-bound Kylie Masse's extraordinary ascent to the top of women's swimming

IN COMPETITIVE SWIMMING, where winning scores are measured in fractions of a second, race times mean everything to athletes – but not to Kylie Masse. Bound for the Olympic Games in Rio de Janeiro this August, the swimming champ is remarkably Zen about her pace in the pool. “I try to be confident in how I have prepared in training and just do the best I can, and not overthink things,” says Masse, a second-year kinesiology student at U of T.

Focusing less on speed and more on skill and strength is an approach Masse and her U of T coaches say have propelled her extraordinary ascent from virtual unknown just two years ago to top-five female swimmer worldwide.

She first made a splash on the swim scene in South Korea last July when she captured gold in the 100-metre backstroke at Universiade, an international event for university athletes. Earlier this year at the Canadian Interuniversity Sport Championships she won multiple races, shattered Canadian records and was named female swimmer of the year.

At the Olympic trials in April, Masse broke the national record for the 100-metre backstroke. “It all comes down to that one race, and touching the wall and seeing my time – it was so many feelings all at once ... so overwhelming and also so exciting,” says Masse. She is one of two U of T-trained athletes who had qualified for the Olympics by late May – the other is alumna Rosie MacLennan (BPHE 2011), the reigning world trampoline champion.

Masse first dove into competitive swimming at age 10, after having spent previous summers taking lessons at the local pool in LaSalle, Ontario, with her brother and sister. Two years ago, Masse came to U of T for the high-calibre academics, she says, and for its renowned Varsity Blues swim program, which is distinguished for its championship record and for producing many elite athletes.

Balancing both academics and athletics isn't easy when Masse's training regime involves four hours a day of technique and speed work in the pool and/or strength building in the gym. What has helped is a reduced course load, and the expert guidance of her coaching team led by Byron MacDonald – himself a former Olympic swimmer. MacDonald says Masse's natural talent and unflagging commitment have allowed her to excel.

“She has a phenomenal feel for the water, which is something that is difficult to teach,” MacDonald says. “What she does in training boggles the mind.... She doesn't put limits on herself and always works hard.”

Masse must work even harder now as she prepares for the Olympics, but she's got the right attitude to succeed. “Being happy is a really important element of performing well,” she says, “so that's what I'm doing – staying happy and positive.” - **SHARON ASCHAIK**

U of T's Olympians



The number of U of T alumni who have swum, ice-skated, bobsledded – you name it, they've done it – at the Olympics or Paralympics is astounding: the number has surpassed 400.

The very first U of T Olympian was George Orton (BA 1893 UC). At the Paris games in 1900, he nabbed first place in men's 2500-metre steeplechase and third in men's 400-metre hurdles.

The latest medallist, hockey player

Jayna Hefford (BPHE 2004), took home gold from Sochi in 2014. (She also holds three other golds and a silver from previous Olympics.)

Grads have also triumphed at the Paralympics: For example, Joanne Bouw Berdan (BSc Pharm 1986) holds a whopping 10 medals – eight of them gold – in discus, shotput, javelin and long jump.

Final tally of medals? 86 (34 gold) from the Olympics, and 26 (12 gold) from the Paralympics. - **STACEY GIBSON**

Carbon Busters

How can Toronto reduce its greenhouse gas emissions? Munk School students propose the ways



TORONTO SHOULD REQUIRE property developers to include electric vehicle charging stations in all new residential developments, a group of master's students at the Munk School of Global Affairs has recommended to city officials. The students, who as part of their course work spent a term researching ideas for how Toronto could reduce its greenhouse gas emissions, also urged City Hall to start replacing its fleet of traditional vehicles with electric ones.

Munk School professor John Robinson, a course supervisor, says the students were asked to develop real-life solutions to a problem supplied by the city – in this case, how to reduce greenhouse gas emissions 80 per cent by 2050. The experience is also designed to help the students, of course. “It’s a chance to explore an interest, to see what it looks like to work in that field and to gain some relevant hard skills along the way,” says Kieran Alkerton, who is in his second year of the program.

Course participants were divided into teams, each of which looked at one angle of the greenhouse gas challenge, such as transportation, energy supply and buildings.

Alkerton’s team looked at encouraging the adoption of electric vehicles. There’s little demand for green cars in Toronto because of their high price, the relatively short distance they can travel between charges and the limited availability of charging stations. Fewer than one in 1,000 passenger vehicles on Toronto roadways are electric.

The team recommended that 20 per cent of new high-rise residential parking spaces be equipped with charging stations. This is the same proportion that Vancouver implemented as a compromise between electric car enthusiasts and condo developers. Students also suggested that the city lead by example, expanding its fleet of electric vehicles from 12 to 138 by 2024. Even then, the green vehicles would represent only a small fraction of the total fleet of 5,000.

Another group of students looked at converting the city’s power sources to renewable energy. They noted that the need to replace 1950s infrastructure creates an opportunity to “optimize the grid” with fresh, green technology, the costs of which could be covered through tax incentives, green bonds and public-private partnerships.

City officials welcomed the students’ reports for providing new research and fresh thinking on an important issue. Mark Bekkering, a manager with the Environment and Energy Office at City Hall who was in charge of matching participants with city employees, says: “These students were given the opportunity to explore ideas in a different way – and they did a great job.” – **ARTHUR KAPTAINIS**

BY THE NUMBERS

Commuter U



63 per cent of Toronto university students take public transit to school. Twenty-six per cent say they walk or cycle and 10 per cent drive.

33 per cent spend two hours or more daily travelling to and from campus. The average one-way commuting time for U of T students to the St. George campus was 36 minutes. By comparison, the average for York and Ryerson students was 46 minutes.

90 per cent who commute more than an hour each way say their commute discourages them from participating in off-campus activities; 68 per cent say it affects which courses they pick. This was true of fewer than 30 per cent of students who commute less than 20 minutes each way.

StudentMoveTO, a survey conducted last fall of how students at U of T and York, Ryerson and OCAD universities move around Toronto, yielded more than 15,000 responses. The results are still being analyzed, but they’re expected to yield insights that will help guide city and university decision-making on everything from transit planning to course scheduling.

To find out more, visit studentmoveto.ca.



“U of T Celebrates Innovation” recently feted inventions created on campus, including a coating technology that keeps solar panels clean



Boosting student startups at U of T

“U of T is a global leader in transforming innovative ideas into products, services, companies and jobs,” says Meric Gertler, president of the University of Toronto. “With RBC’s support, this new initiative will further expand the university’s entrepreneurial efforts and help ensure our nation remains competitive by keeping talented innovators in Canada.”

ONRamp will enable entrepreneurs to network with each other, develop their ideas, attract potential investors and grow their businesses. A \$3-million contribution from RBC, Canada’s largest bank, will also be used to create fellowships, prizes and a speaker series intended to enhance the university’s entrepreneurship ecosystem.

“We have some of the brightest and best ideas emerging from our universities, but too frequently our young entrepreneurs have to look abroad to get their businesses off the ground. ONRamp should help change that,” says Bruce Ross, group head of technology and operations at RBC.

Under the umbrella of the Banting and Best Centre, U of T’s vast innovation ecosystem already consists of more than 60 entrepreneurial program and course offerings, and is supported by a network of nine campus-linked accelerators. Students wishing to find out what entrepreneurship courses are available at U of T can use the Banting and Best Centre as a one-stop shop. The same goes for students wanting to start their own company; the centre can direct them to the campus accelerator best suited to develop their idea.

U of T has also created a number of post-doctoral and graduate scholarships to support innovative students across a broad range of research areas. With its fellowships, ONRamp will build on this central program of support.

– OLIVIA TOMIC

Support You Can Bank On

U of T teams up with RBC to create new resources for student entrepreneurs

THE UNIVERSITY OF TORONTO and the Royal Bank of Canada have announced a major new initiative that will help support Canada’s entrepreneurs.

Located over three floors in U of T’s Banting and Best Centre for Innovation and Entrepreneurship on College Street, ONRamp will provide new collaborative workspaces for students and startup companies to support them in developing commercial ideas. It will be open to students and graduates of U of T and other Ontario universities and colleges.

People



Elizabeth Edwards

Prof. **Elizabeth Edwards** of engineering is using nature to fix humanity’s toxic environmental mistakes: She and her team turned the micro-organism *Dehalococcoides* into a commercial product that breaks down chlorinated compounds. And in April, the Canada Council for the Arts named Edwards, Prof. **Steven Narod** and Prof. **Daniel Trefler** winners of prestigious Killam Prizes for outstanding research in Canada. Narod, of the Dalla Lana School of Public Health, is a co-discoverer

of the BRCA 1 and 2 genes, which, when mutated, increase a woman’s chances of developing breast and ovarian cancers. Trefler, a professor of business economics at Rotman, is a trade economist known for his contributions to public policy formation in Canada. In addition, U of T law and philosophy professor **Arthur Ripstein** received a two-year Killam Research Fellowship. Ripstein is a leading scholar of Immanuel Kant’s legal and political philosophy.

Prof. **Ulrich Krull** has been

named interim vice-president and principal of UTM. He previously served as UTM’s acting vice-president and principal for six months during Prof. **Deep Saini**’s administrative leave. Krull holds the AstraZeneca Chair in Biotechnology.

After serving as interim dean of OISE for 10 months, Prof. **Glen A. Jones** has been appointed its dean, beginning in July. Jones is the Ontario Research Chair on Post-Secondary Policy and Measurement.



A Day to Remember

IT IS, **WITHOUT DOUBT**, one of life's most important milestones. And between May 31 and June 16, some 13,500 U of T students experienced that tremendous sense of pride and accomplishment that comes with receiving a university degree.

Among them was Mihil Patel (top left, front), who received the John Black Aird award for being the top student at U of T. It is the fourth year in a row that a student from UTSC has

received the honour. Patel graduated with a bachelor of science degree.

City Hall lit the Toronto sign in blue and white, and a group of engineering students used the opportunity to add a few letters of their own (above). Most new grads celebrated their achievement with friends and family on front campus.

Joining this spring's convocations were 10 honorary graduates, including Gerald Schwartz, the chairman and CEO of Onex Corp. and Linda Schuyler, creator of the famed *Degrassi* series. **See the back cover for the full list.**



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“I’m pretty sure that if Shakespeare were alive today, he’d be writing for Hollywood”

U of T Mississauga English professor Holger Syme on the Bard’s enduring appeal

p. 26

Who’s liable in an accident if there’s no one behind the wheel?



Robot, You Can Drive My Car

Automated vehicles are almost here, but governments have done little to prepare, U of T analysts warn

AS IF UBER HADN’T RATTLED CITY policy-makers enough, consider this not too far-fetched scenario: What happens when the ride-sharing company begins to dispatch driverless cars to pick up and drop off passengers?

When that futuristic vehicle pulls up in front of your dwelling, “it’s probably too late for governments to think about how to start regulating,” observes Sara Ditta, a policy associate at U of T’s Mowat Centre and the co-author of a recent report on automated vehicles.

Uber, which has prompted protests by taxi drivers in many cities, offers a cautionary tale about what happens when governments fail to think ahead about disruptive technology, according to Ditta and co-author Noah Zon, a former colleague. Noting that, earlier this year, Ontario became the first Canadian province to authorize tests of fully automated vehicles on public roads, the report’s authors warn: “Governments can’t once again afford to be caught flat-footed.”

The 23-page study identifies several policy areas that will be affected by the presence of driverless cars on roads and highways. In the short term, these include safety, liability and insurance, and employment (about 15,000 people work in Toronto’s taxi industry alone). In the longer term, automated vehicles could affect everything from urban planning to car manufacturing. And because these computerized vehicles will be connected wirelessly to digital networks, they will challenge existing policies on data privacy and security. ►



Lux Research estimates that cars capable of driving themselves will represent 10 per cent of the North American auto market by 2030

➤ Based on the rapid evolution and testing of the technology, and the determination of giant companies such as Google to bring driverless cars to market, Ditta predicts that these vehicles will be available within a decade.

On the one hand, this revolution will bring social benefits, such as enhanced mobility for older people or those with visual or physical impairments. But on the other, as Ditta and Zon point out, there are complex questions about insurance and liability to sort out.

While extensive testing has shown that automated vehicles are safer than conventional ones (partly because they don't suffer from human failings such as impairment or distraction), questions linger about who is liable when accidents happen. What's more, existing rules specify that a person needs to be operating the vehicle.

The authors also point out an unintended consequence of this new technology: some vehicles will be only partially automated, so drivers can take over from the computerized navigation system. But as humans reduce the time they spend at the wheel, their driving skills may deteriorate – boosting the risk of accidents. “We ultimately face the question of whether allowing people to operate vehicles makes sense,” the authors write, “given the public health and safety implications when automated systems are demonstrably safer.”

Ditta stresses that the point of the report is not to advocate for specific policies to either help or hinder the rollout of automated vehicles. Rather, she's pushing decision-makers to stay abreast of technological advances and consider a range of regulatory responses. - JOHN LORINC

Read the complete report at mowatcentre.ca/robot-take-the-wheel.

A Few Simple Questions Could Change Your Dental Visit

Dentists should screen patients for anxiety to minimize their experience of pain, new research suggests



A FEW YEARS AGO, Iacopo Cioffi, a professor in the Faculty of Dentistry, wanted to find out whether a new type of orthodontic material could reduce the initial pain experienced by most patients with braces. His study, which included brief psychological assessments of patients, revealed something interesting: some people who scored higher for anxiety traits also reported greater pain intensity, no matter which type of orthodontic material was being used.

This accidental finding prompted Cioffi to look into how psychological traits affect patients' pain perception following orthodontic procedures. In a study published this year, he compares the pain perceptions of people who report feeling generally nervous with those who feel generally secure and calm, after having elastic separators placed between their teeth for five days. The patients with high anxiety traits reported significantly greater discomfort and almost twice as much pain as those with low levels of anxiety.

As a researcher and practicing orthodontist, Cioffi believes clinicians should take psychological traits into account when planning and performing dental work. Treatment success depends not only on the clinician's skill but also on patient compliance, which is compromised when pain is experienced. Cioffi recommends that an anxiety questionnaire such as the State-Trait Anxiety Inventory be used during an initial consultation to “yellow flag” anxious patients. The clinician can then use this information to help guide the approach to treatment – for example, choosing a less complex procedure to minimize pain risks and make compliance easier. “You need to tailor treatment to psychological traits to do the best for your patient,” says Cioffi. - MARK WITTEN

LINGO

Mx



In the U.K., people who don't identify as male or female, or who prefer not to disclose their gender, can now choose to be addressed by the honorific “Mx” rather than “Mr, Mrs, Miss or Ms” on official documents such as a driver's licence or a bank statement.

The trend, which is also gaining popularity in the U.S., goes hand

in hand with the growing use of the pronoun “they” to describe an individual.

Ido Katri, a doctoral candidate in law who is involved in transgender rights, says “Mx” may be a useful option for some members of the trans and “genderqueer” community. But Katri, whose research looks at government-

issued identification for trans people, questions any designation that would identify people as gender non-conformist. “I can see on one hand why people would want to use something like ‘Mx,’ but I see this as potentially another tool to mark and surveil trans people,” Katri says.

- SCOTT ANDERSON



Prof. Jooyoung Lee learned “popping” – a kind of hip hop dance – from a street performer while attending UC Berkeley. He also had a weekly DJ gig, where he learned to mix beats and scratch



Prof. Jooyoung Lee (left) with rapper Big Flossy

Lee’s research also overturns a stereotype that young black men who pursue rap dreams aren’t planning for the future. In fact, says Lee, these men resemble most other entrepreneurial youth. The difference lies in how they are viewed, and that they lack the safety net of a well-to-do family. “There’s a cultural expectation that bold and industrious people in their 20s will take a business risk, go travelling or chase an unlikely career in the arts,” he says. “But we have a very different standard when we talk about young black men from working-class backgrounds. There’s this assumption that they shouldn’t do these things; they should just focus on a pragmatic way of making ends meet.”

With his book, Lee hopes to spark discussion about this kind of implicit racism, and about support for the arts in disadvantaged communities. He says many North American cities,

including Toronto, have turned to punitive measures for dealing with “youth problems” – such as putting more police on the street. While he acknowledges that police are vital, he argues that the arts offer a proactive way of dealing with the same issue, and cites Project Blowed as evidence. “I worry that the politically attractive solution to gangs is to ramp up punitive measures. But there’s a case for nurturing the interests of young people so they don’t go down the gang path in the first place.”

Lee, who is Korean-American and grew up east of L.A., has a strong personal connection to these issues. He remembers watching the Rodney King riots on TV when he was 11, and thinking, even then, about racial inequality as “a larger structure that shapes people’s lives and limits their chances.” Later, as a teenager living in Jacksonville, Florida, he had an encounter with that larger form of racism. His best friend, who was African-American, was driving him to a party in an affluent white neighbourhood when police pulled them over. “When the officer saw my friend’s face, he became very aggressive and repeatedly called him ‘boy,’” says Lee. “‘Hey boy, listen to me boy, who are you here to see, boy?’”

“I remember thinking that as many times as I’d experienced an interpersonal form of racism – people at school calling me ‘chink’ and ‘gook’ – I’d never experienced it at the systemic level, as my friend did with this police officer. I knew then that at some point in my life I would try to shed light on this and help alleviate some of these inequalities.”

Lee is already working on his next book, *Gunshot*. “It’s a study about violent trauma and its disastrous consequences on people’s lives,” he says.

– SCOTT ANDERSON

THE BIG IDEA

Rap Dreams

Where gangs rule, hip hop is a strongly positive force for youth, study finds

BETWEEN 2005 AND 2009, Jooyoung Lee spent most Thursday nights at Project Blowed, a weekly open mike for aspiring hip-hop artists in south central Los Angeles. Lee, who at the time was working toward his doctorate in sociology at UCLA, had originally planned to write about Project Blowed. But, over time, he became interested in how many of the youth involved with the project began to see their artistic pursuit as a career path, a creative alternative to gang life. They started putting their energy into being discovered, or “blowin’ up.”

Lee, now a U of T sociology professor, collected thousands of pages of field notes, 90 hours of video recordings and interviewed 30 rappers. The resulting book, *Blowin’ Up*, shines a light on the lives of young black men growing up, as Lee writes, “in the shadows of gang violence and the entertainment industry.” It delves into L.A.’s hip-hop culture and the creativity of rapping. And it opens a window into a part of the city where neighbourhoods are divided by gangs and most people’s lives have been touched by violence.

Critics of hip hop say – often without evidence – that it funnels youth into gangs and leads to increased violence. But Lee found the opposite. “The young men I met and followed saw hip hop as a sanctuary – a respite from the street life,” he says. “It provided a context where they could meet and befriend youth from different neighbourhoods.”



More than 300 actors, writers, directors and theatre producers surveyed in 2008 chose *Hamlet* as Shakespeare's greatest play. *King Lear* placed second and *A Midsummer Night's Dream* third

Q&A

Much Ado about William

What explains Shakespeare's enduring appeal, 400 years after his death?

Literary and theatrical tastes change, but contemporary directors and audiences alike seem to have an endless appetite for the Bard's most popular works. **Jenny Hall** spoke to English professor **Holger Syme** about Shakespeare's modern-day appeal.

Why is Shakespeare still so popular? There are two very different answers depending on which Shakespeare we're talking about. For the last 300 years or so, Shakespeare has had two quite distinct lives, one on the page and one on the stage. On the literary side, Shakespeare is exceptional – but not quite as unique as we might think. He is one of the few authors who have always been in the canon of standard texts of English literature. This group also includes Chaucer and Milton; and there are authors like this in other national canons as well.

And on the stage? Not long after his death, Shakespeare's work survived because most theatre makers had a limited respect for the text. In Shakespeare's version of *King Lear*, for example, both Lear and his daughter Cordelia die. But by the late 17th century, *King Lear* had acquired a happy ending, revised because audiences preferred this more optimistic conclusion. In the 19th century, that changed and the consequences are still with us. It became desirable to stage the plays exactly as they were written, or at least advertise them as such. By the end of the century, some people even tried to perform them as they might have looked in Shakespeare's day.

What do you think about this approach? If it makes for interesting theatre, why not? But I think the demand to be "faithful" to Shakespeare is fraught with problems. For one thing, what does it mean to commit oneself uncritically to ideas and views of the world that are 400 years old? Shouldn't the task be to figure out how to bring those works of the distant past into a dialogue with the present? I worry that an excessive respect for his works has anesthetized their theatrical power.



Claire Danes and Leonardo DiCaprio in *Romeo and Juliet*

"Historically accurate" stagings have the additional problem that they give people an illusion of authenticity, when really such authentic contact with how these plays were staged in Shakespeare's time would require the actors and the audiences to transform themselves into Elizabethans. As is, this kind of performance can be good theatre – but it's no more authentically "Shakespearean" than a *Hamlet* set in contemporary Toronto.

Do you like Shakespeare on film? In North America, Shakespeare's stage popularity – if that's the right word – has a lot to do with not challenging audiences' expectations too much. But on film, you can do things with Shakespeare that are genuinely popular precisely because they break with convention, like the Baz Luhrmann film version of *Romeo and Juliet*, with Claire Danes and Leonardo DiCaprio. I'm pretty sure that if Shakespeare were alive today he'd be writing for Hollywood. We don't know a lot about him, but we do know that he liked to make money, and that he didn't mind collaborating on his plays. I think he'd feel at home in a writers' room.

Are there other reasons for Shakespeare's enduring appeal? Shakespeare was writing during a transformative period in Western history. He picked up on psychological ramifications and anxieties of that moment that are still with us. Shakespeare also has a habit of constructing his characters and plot lines in a way that includes a kind of strategic opacity – a term coined by the critic Stephen Greenblatt. He leaves gaps where you expect clarity. He often fails to provide crucial bits of information. This leaves the responsibility of constructing characters or making plots work to the director and actors or to the audience. This habit allows Shakespeare's plays to be "newly completed" every time they're read or staged. Shakespeare is an extraordinarily shifty writer. And it's precisely because he's hard to pin down that he can be constantly reinvented – but he also has to be. Shakespeare has stayed alive because he requires interpretation and reinterpretation.



Hykso estimates that 35 million people worldwide participate in boxing and mixed martial arts


Improve Your Punch

Hykso creates wearable tech for boxing

While working on his U of T degree, Khalil Zahar (MAsc 2014) trained as an amateur boxer. To objectively determine how hard he was punching, he came up with the idea of embedding a sensor in a punching bag. In July 2013, he and his business partner landed spots at the Impact Centre, a U of T incubator, and, a month later, launched Hykso – but

were unable to turn a profit. After interviewing many potential customers, they decided to strap the sensors to the boxer’s wrists instead. That was the knockout punch.

The company started taking orders earlier this year and has generated \$260,000 in sales. Zahar sees opportunities to adapt Hykso’s sensors to other sports, such as basketball, soccer and running, and ramp up sales in new territories – particularly South America, where soccer is a continental obsession. “We want to be the Nike of smart sports gear.” – **SCOTT ANDERSON**



Hykso’s sensors, worn inside the boxing gloves, are about the size of a cellphone SIM card. They count and measure the speed of punches, clock the time between punches, and can recognize left and right jabs and power punches.

Broadcasters like being able to rank boxers by punch count and force and to share data from bouts in real time with viewers. Hykso currently works with New England Fights, a regional promoter.

Software records the data so boxers can track their performance. It also allows amateurs to compare their execution against the pros’ and enables groups of users (at a gym, say) to train competitively against other groups.



In 1985, Statistics Canada reported that 1.7 million Canadian households owned tents. No information on how many hours they spent setting them up



Making Camp

Every summer, hundreds of thousands of Canadians pack up their vehicles and head to campgrounds to pitch a tent and spend some time closer to nature. But for Mason White, a professor at the Daniels Faculty of Architecture, Landscape, and Design, a trip to a popular car-camping spot in southern Ontario a few years ago was a tad underwhelming: “It felt a bit like we were setting up tent in the suburbs,” he says.

He and business partner Lola Sheppard at Lateral Office, a Toronto architectural firm, wondered how they might reinvigorate the collective camping experience in an authentically Canadian way. Working with students from U of T and the University of Waterloo, they designed five new campsites, each with a specific environment in mind. These include the “Lookout” (above) and “Suspend” (above, far right) for forests; and the “Closed Loop” (right) for lakes and wetlands.

White says all of the sites cater to people who want to branch out from car camping but are not so keen on the more rugged canoe tripping, with almost no amenities. Each of their schemes features a simple timber construction and incorporates tents, so campers don’t have to bring their own.

The Lookout enables campers to sleep high up amongst the trees. Campfires would be located at the bottom of the structure, a little like the urban experience of having a restaurant at the bottom of a condo building.

The Closed Loop is designed to be accessible to campers by canoe or, if partially anchored to land, on foot. Tents are provided on the outer part of the ring. The inner part is for gathering and filtering water and swimming.

Parks Ontario and Parks Canada are interested in both designs, and Lateral Office has discussed testing one of them at a park in southern Ontario.

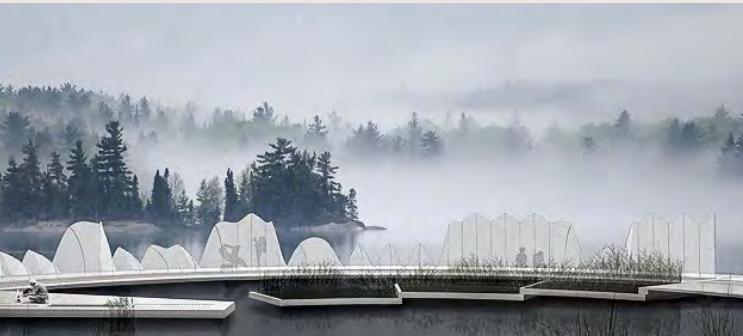
“This is about modernizing a traditional experience that is part of our national identity,” says White. “These are platforms for experiencing the landscape – not just seeing it, but inhabiting it for a period of time.”

– SCOTT ANDERSON

See all five of Lateral Office’s campsites designs at lateraloffice.com/MAKING-CAMP-2015.



The Lookout (left) is designed for forests. Tents are located in the ceilings of the stacked platforms, and are pulled down for use. **Suspend** (directly below) also lets campers sleep high among the trees



The Closed Loop (above and right) hovers above a wetland or bog. Campers gain access by boat or on foot via a ramp. Tents are provided



A Very Short History of Camping

1876 Euklisia Rug Invented

A precursor to the sleeping bag – a wool blanket that can be fastened shut around the body – is created by mail-order pioneer Pryce Pryce-Jones.



1885 First Land Zoned by Canadian National Parks

Twenty-six square kilometres of land in Alberta are secured for Canada's first national park. Originally known as Cave and Basin Hot Springs, it's now Banff National Park.



1889 First Air Mattress

The Pneumatic Mattress and Cushion Company creates the air mattress for Atlantic steamships as an alternative to hair-filled mattresses.



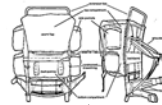
1930 National Parks Act

The Canada National Parks Act sets the guiding philosophy for the management of national parks, which "are hereby dedicated to the people of Canada, for their benefit, education and enjoyment... and shall be maintained and made use of so as to leave them unimpaired for the enjoyment of future generations."



1967 First Internal Frame Backpack

This essential piece of camping equipment was invented by Greg Lowe in his garage, in Colorado.



1967 Winnebago Begins Mass-Producing Recreational Vehicles

Advertised as "America's first family of motorhomes," five models are offered, from 16 to 27 feet long, for a minimum of \$5,000.



1971 Mountain Equipment Co-op Founded

The co-op offers an unlimited number of equal membership shares for \$5 each and sells high-quality gear for rock climbing, mountaineering and hiking.



1984 Part of the Canadian Rockies Designated a UNESCO World Heritage Site

The area includes four national parks in Alberta and B.C. and three provincial parks in B.C.



2015 Parks Canada Announces First Wi-Fi Access Points

Wi-Fi is to be installed at 75 locations in national parks and historic sites over three years.



Source: Lateral Office



A website called The Virtual Academic creates random sentences of academic jargon, such as “the representational validity of binary opposition is symptomatic of the legitimization of the gaze”



Who Are We Trying to Reach?

The case for academic writing that everyone can read

IN 1980, my father asked each of us kids to write what we thought we would be doing in the year 2000, and then put it in a time capsule. When we opened it, I read my 12-year-old handwriting that said I was going to be a writer living in Switzerland with five children. Well, I had two kids and I live in Toronto, but I did get one thing right: I am a writer. And I’m getting used to actually claiming that, even though I didn’t for the first 20 years of my academic career. When I was at the dentist’s office, I didn’t have quick words to explain an academic writing project, so I would just say that I was a prof and leave it at that. But nowadays I’m trying to write in a more accessible way, so I like to talk about my ideas with the hygienist or receptionist. Sometimes, I wish more of my academic colleagues felt likewise.

Academic writing always felt like a game that I was good at: the introduction with thesis statement, the analysis and conclusion, the copious footnotes, the theoretical vocabulary and erudite references. I found this all incredibly satisfying and even fun. But lately I’ve come to think that it was only fun for me.

In recent years, I’ve begun to admit to myself that I don’t read academic books in their entirety. I usually skip the textual analysis and the literature reviews in favour of the

author’s thesis and motivation. If I don’t want to read that kind of book anymore, then I can’t imagine that members of the general public would want to either. And I can’t, in good faith, write one.

So I am writing a creative non-fiction book that I want people like my sons, my neighbours, my undergraduate students – and my dental hygienist – to read. It’s about seduction and desire and giving yourself away. At the heart of it is a question about what it means to grow up as a heterosexual woman in our contemporary society. As I’ve worked through my ideas, I’ve found that I can’t write it the way a sociologist or academic scholar may approach the topic. Instead, I discuss the impact of feminism, psychoanalysis and cultural studies on my own life. And I write in the first person in a way that people who have not read gender theory can

still engage with.

All professors know how to translate theory into practice because of our experience in the classroom. Our students have an urgent desire to understand the structures that shape who and what they are – and they expect to learn how to engage with and interpret texts and relate them to their own lives. Instead of imposing academic discourse on them, we try to articulate our ideas in relation to theirs, and to listen to what is important to them. Many scientists, meanwhile, learn to discuss their research with journalists for mainstream magazines and news. In the social sciences and humanities, I have spoken to many scholars who *want* to write differently but who feel that they don’t really know how to express their ideas for a broader public.

My colleague and friend Elspeth Brown and I convened the Toronto Writing Workshop at the Jackman Humanities Institute because we both believe that, as academics at a public institution, we can and should publish our work in a way that is accessible to everyone. At a time of rapid social and technological change with respect to how information functions and circulates, many scholars should be asking: “Who are we trying to reach, why and how?”

Our call for participants drew almost 80 applications from around the world, which made us realize we had tapped into an urgent need that academics feel to write clearly and in an accessible way. The 16 participants will spend a week with our two creative non-fiction instructors. At the end of it, they will have acquired a few skills that will help them communicate their ideas to a broader public.

Eva-Lynn Jagoe is a U of T professor of Latin American and Comparative Literature.



Hashima, or Battleship Island, was featured in the 2012 James Bond film *Skyfall*; it was the villain's headquarters

Cities in Ruins

A resident of an urban slum in Guangzhou, China



Tong Lam loves ruins. Not in the nostalgic way of the 19th-century romantics, but with a keen sense of their implications for the modern world. The U of T Mississauga history prof began taking pictures of abandoned cars in California in 2009, and since then has done photographic surveys of derelict amusement parks, decommissioned Cold War defences and Chinese cities rocked by what he calls “hysterical transformation.”

Some of his most striking images come from China, particularly the southern city of Guangzhou, where the gleaming towers of the new city encircle a massive urban slum. Others depict the abandoned buildings of Hashima, a former coal-mining island off the south coast of Japan that was once a key force in that country's industrialization, much like Detroit was in the U.S. Lam says he takes pictures of city ruins “to think about the larger process of globalization and the circulation of capital.”

There's no division between his art and scholarship. Lam has organized conferences on the topic of post-industrial ruin and published a book, *Abandoned Futures*, on a similar theme. Sometimes he uses his photography to provoke classroom discussion. “I find it productive because it's not conclusive,” he says. Where academic articles tend to deliver a clear message, with evidence, an argument and a conclusion, art is more open-ended. “It doesn't give you the final answer,” he says.

– BRENT LEDGER

See a selection of Tong Lam's photography at magazine.utoronto.ca.

The Fast Lane Out of Poverty

Paved roads give households in developing nations a leg up

The road out of poverty can be long and winding for the urban poor in developing countries. But a recent study has found that governments can help their lowest-income citizens by simply paving the streets.

The research, by Marco Gonzalez-Navarro, an economics professor at U of T Scarborough, and a colleague at the University of Oxford, found that upgrading local roads led to dramatic increases in household wealth.

Between 2006 and 2009, the researchers looked at the effect of 28 publicly financed road projects in Acayucan, Mexico, and compared those to 28 roads that didn't receive upgrades. In addition to asphalt surfacing, the improvements included designated lanes, parking spaces and connections to the city street grid.

At the end of the three years, the value of land adjacent to the better roads had risen 72 per cent more than the land next to dirt roads, while property values (of house and land) were 17 per cent higher. Rents rose an additional 36 per cent.

The hike in property values also boosted credit use; residents with good roads were able to make twice as many home improvements as they could before, while vehicle and home appliance ownership also steadily increased.

Gonzalez-Navarro says it's important to note that the increase in consumer purchases was a result of the increase in household wealth and not from relaxed credit constraints. “These households simply looked at their assets, realized they're wealthier than before and decided to buy these goods.”

The study suggests that governments should consider infrastructure investment in addition to the common practice of direct cash payments to assist low-income earners. “There's always a question in development economics about the best way to help the poor and improve their standard of living,” says Gonzalez-Navarro. – DON CAMPBELL



One experiment involves pairs of people who disagree on a contentious issue such as abortion or gay marriage. Each person is stationed in an adjacent booth in the lab. They're wired with biometric recorders while they answer survey questions on a computer. Once they are settled in, a door opens between the two booths, and they must engage in formal debate on their particular bone of contention.

"We use a structured debate to prevent a dominant personality from taking over," says Jennifer Stellar, a post-doctoral fellow working in Page-Gould's lab. "It also allows us to get better physio readings when each participant spends part of the time just listening." When the debate is over, the participants must collaborate on a task, which allows researchers to see if the heightened physiological responses continue through less contentious forms of interaction.

IN THE LAB

The Science of Disagreement

How our bodies unwittingly reveal our prejudices

PREJUDICES AND MORAL CONDEMNATION might be products of the human brain, but they can manifest in many other parts of the body. When a person comes face to face with someone they find disagreeable, their heart may beat faster. Their skin may conduct electricity better because their sweat glands are more active, which correlates with feelings of fear, nervousness and anger.

For social psychologists such as Elizabeth Page-Gould, these and other bodily reactions can provide new insight into how people respond to uncomfortable social situations, and also point toward new ways to foster healthy interactions among diverse people.

"We're interested in how we can successfully navigate social interactions in diverse societies," says Page-Gould. "I'm interested in psycho-physiology because it involves uncontrollable responses." Such responses provide insight into reactions people might not even realize they're having.

Because so many factors can shape any interaction – everything from cultural context to how someone slept the night before – Page-Gould's lab takes extra care to design experiments that other researchers can replicate and test. Her team makes a point of working with large sample sizes, and provides data to other researchers, which helps ensure transparency and verifiability.

These kinds of experiments get at how people interact with those who are ethnically, ethically or culturally different from themselves. Page-Gould is working to determine how such variations affect human biology, and what human biology can reveal about how to improve relations.

"In Jennifer's experiment, we're matching people who differ in opinions they view either as moral issues or personal preferences," Page-Gould says. The researchers hypothesize that moral issues will spark a stronger physiological response than matters of mere personal choice.

In other experiments, Page-Gould also collects physiological and self-reported data from participants over days and weeks as they go about their everyday lives. Some participants do a survey many times a day for several weeks, reporting on whom they've interacted with, along with their reactions and feelings.

This multi-pronged approach helps paint a complete, credible picture of what Page-Gould calls the "messy" world of social interactions – and it has yielded some definitive insights. She's found that prejudice, for instance, tends to manifest as bias against a specific group, rather than as generalized xenophobia. In addition, those who come into the lab with the strongest prejudicial feelings also turn out to be the people who benefit the most from interacting with members of the groups they are biased against.

"The ultimate focus of my research is on friendship between people of different groups," she says. "If highly prejudiced people have positive or even just conflict-free interactions with people from other groups, those are the people who then begin to seek out more interaction. Over time, each interaction becomes less of a thing." - **PATCHEN BARSS**



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Find and Replace

Find what:

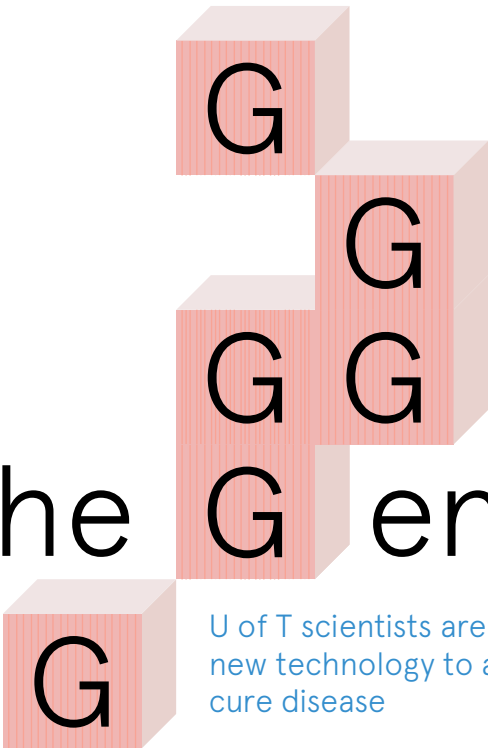
Replace with:

More >>

Replace Replace All Find Next

AAGTGG
AAATGG
GTGGCA
TGGAAT

GG GG
CC CC
AAA AAA
AA AA
TTT TTT
GGG GGG
GG GG



The Gene Editors

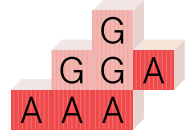
U of T scientists are using a powerful new technology to alter DNA and possibly cure disease

FOURTEEN-YEAR-OLD GAVRIEL ROSENFELD of London, England, thinks it's "freaky" that cells from his body are being studied in a U of T lab. His parents, however, are thrilled that their son's cells are the focus of intensive, cutting-edge research that could make a huge difference in the life of Gavriel and the lives of thousands of children and youth around the world.

Gavriel has Duchenne muscular dystrophy, one of the biggest genetic killers of boys worldwide. Gavriel inherited a mutation in his genes that causes his muscles to progressively

weaken. Two years ago he lost the ability to walk. Soon he will no longer be able to feed himself, roll over at night or hug his parents.

But U of T researchers, using a new gene-editing technology called CRISPR/Cas9 on Gavriel's cells in a lab dish, succeeded in eliminating the mutation that causes a duplication in a portion of his DNA. They are now on the verge of repeating the success in animal studies. A treatment for Gavriel can't come quickly enough for his mother, Kerry, who with her husband runs a charity to find and fund the best research

GC TG
G G A
A A A

CRISPR allows scientists to quickly, precisely and inexpensively edit the genes in the cells of any living organism, whether a microbe, a plant, an animal or a human

A TT

on the disease. Excited by CRISPR/Cas9's promise, she says, "We are at a critical point where we realistically have the opportunity to save this generation of boys."

CRISPR/Cas9, or CRISPR for short, isn't a trade name. It's an acronym for – here it comes – *clustered regularly interspaced short palindromic repeats*, the particular, naturally occurring DNA pattern on which the system is based. Essentially, CRISPR refers to a technique that allows scientists to quickly, precisely and inexpensively edit the genes in the cells of any living organism, whether a microbe, a plant, an animal or a human. (See facing page: "How CRISPR Works.")

The implications are enormous. CRISPR has the potential to change the way we treat genetic diseases such as muscular dystrophy or Huntington's disease, help us better understand cancer and make more efficient drugs. It could also help us create better biofuels, gradually wipe out the mosquitoes that carry malaria or the Zika virus, and raise healthier livestock and better crops. CRISPR/Cas9-engineered foods, likely available in the near future, might include allergen-free peanuts, drought-resistant grains and higher-yielding plants.

Gene editing in itself isn't a new technique, but previous methods, which were restricted to highly specialized labs, were cumbersome and time-consuming – somewhat like having a painfully slow computer that you needed to rewire for every new task. By contrast, CRISPR is more like easily programmable software. Editing a gene can now be as straightforward and accurate as using the find-and-replace function in a word processing program to zero in on a specific phrase in a document, then delete it, tweak it or replace it.

Developed as a gene-editing tool only four years ago, CRISPR has rapidly made its way into labs worldwide. Researchers have called CRISPR revolutionary, jaw-dropping, a game changer, and while scientists are famously reluctant to use the word "breakthrough," in 2015 the prestigious journal *Science* boldly named CRISPR the Breakthrough of the Year. Scientists have already reversed mutations that cause blindness and killed HIV in cells taken from an infected patient. They have also altered pig genes to potentially grow organs for transplanting into humans and turned off the genes in five cancer cell lines. So far, much of the research is happening only in mice, monkeys and lab dishes, but advances are coming quickly. Creating lab mice with specific

genetic profiles used to take 18 months; with CRISPR, it takes four or five, which accelerates the pace of research exponentially (and saves many animals). Clinical trials on humans are likely to start in the U.S. next year, with therapies only a few years away.

"I have been mesmerized by this technology ever since I first read about it," says Ronald Cohn, professor and chair of U of T's department of pediatrics, and the lead researcher in the groundbreaking study using Gavriel's cells. "CRISPR has already revolutionized how we do science, and it could revolutionize how we practice medicine."

Treating Duchenne muscular dystrophy

Of all the types of muscular dystrophy, Duchenne is the most serious. It causes immobility at an early age and, as the heart and lung muscles weaken, leads to premature death. But Cohn, a clinician-scientist who next month will become the chief of pediatrics at the Hospital for Sick Children in Toronto, believes gene-editing therapies for some Duchenne patients could be only three to five years away. Last fall, using CRISPR on Gavriel's own cells in a lab dish, Cohn's team succeeded in cutting out the mutation and restoring the normal gene function, complete with normal dystrophin, the essential protein that Duchenne patients lack.

Cohn's team has since repeated the success using the cells of several patients. He's now working on recreating the duplication in mice – "we're almost there," he says – after which drug therapies will be investigated. Cohn says it's neither possible nor necessary to fix 100 per cent of the cells in order to make a patient significantly better. "In fact, the threshold of correcting muscle cells in a patient with Duchenne muscular dystrophy might be as low as 10 to 15 per cent," he says. He predicts that even such a small change could sufficiently delay a patient's muscle weakening so he would not lose mobility until much later in life, if ever.

The technical challenges are small, the regulatory ones somewhat larger, Cohn says. Since patients with genetic diseases often have very individual mutations, the usual one-size-fits-all regulatory framework involving clinical trials on thousands of patients won't be possible. "A lot of these therapies will be incredibly individual, so we'll have to change the paradigm on the regulatory side," he says. He has already

How CRISPR Works

CRISPR wasn't so much invented as discovered.

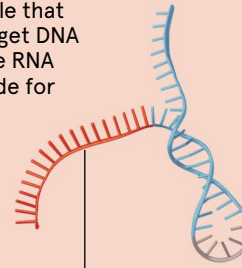
In the late 1980s, Japanese scientists studying *E. coli* gut bacteria found odd, repeating sequences of DNA whose presence puzzled them. Later, European microbiologists found the same sequences in other types of bacteria and dubbed these patterns "clustered regularly interspaced short palindromic repeats," or CRISPR for short. Still, no one understood the sequences' purpose.

In the early 2000s, scientists recognized that CRISPR is a natural, age-old defence mechanism against, of all things, viruses. Like people, bacteria can become infected by viruses. Once a bacterium recognizes the presence of an invading virus, its CRISPR defence system goes into action.

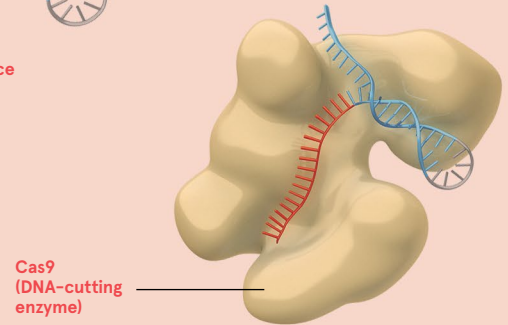
The bacterium copies the virus's DNA into a molecule of RNA, DNA's messenger. This guide-RNA now has a sequence that matches that of the invading virus. Stationed nearby – the best-known is called Cas9 – that act like microscopic scissors, capable of cutting DNA. The guide-RNA is like the "hand" that directs the scissors to exactly where to cut. Together, they succeed in cutting up the virus's DNA. The virus dies, and the bacterium survives.

In 2012, three researchers – biochemist Jennifer Doudna at University of California, Berkeley, microbiologist Emmanuelle Charpentier, now at Berlin's Max Planck Institute for Infection Biology, and bioengineer Feng Zhang at the Massachusetts Institute of Technology – showed that you could harness the power of CRISPR/Cas9 to use deliberately as a gene-editing tool. Today, scientists can use CRISPR/Cas9 to target the DNA of any living organism, not only to disable a gene but also to alter or splice in a new piece of DNA. To accomplish this, scientists use software to design the target sequence, and can make or purchase the matching guide-RNA and Cas9.

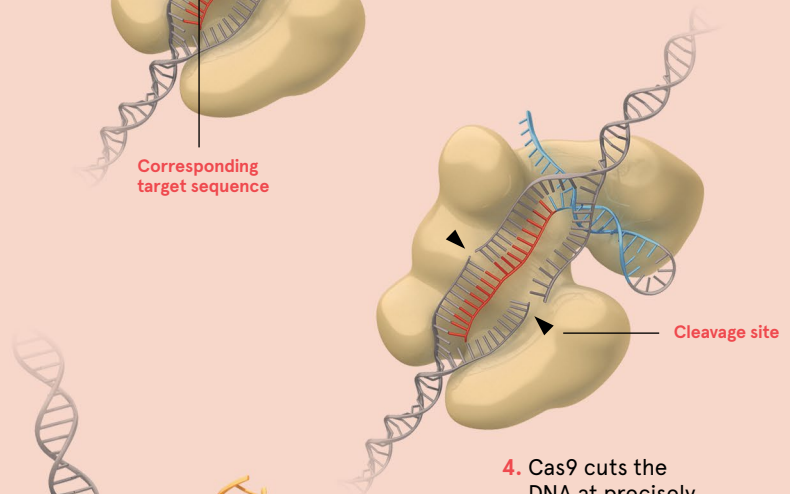
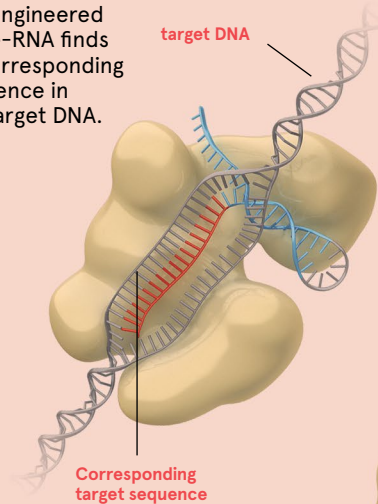
1. Scientists design a RNA molecule that matches a target DNA sequence. The RNA acts like a guide for where to cut.



2. The guide-RNA is attached to Cas9, which acts like scissors.



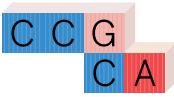
3. The engineered guide-RNA finds its corresponding sequence in the target DNA.



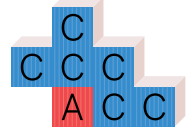
4. Cas9 cuts the DNA at precisely the desired spot, disabling the targeted gene.

5. In a separate process, scientists can splice in a new piece of DNA at the same spot.





“We’re pretty excited by CRISPR’s potential to give us a much faster way to get a comprehensive picture of what’s going on in many different cancers”



begun high-level conversations with Health Canada and hopes to do the same soon with the U.S. Food and Drug Administration.

To encourage pharmaceutical companies to develop individualized drugs, industries will need incentives to make a drug that may be administered only once to a small number of patients. Cohn has already talked with two drug companies who recognize this may be the future of genetic medicine and who are eager to pursue it. They believe the current model of drug development is unsustainable. Developing a new medication today costs at least \$2 billion, and many drugs never make it to market because clinical trials can’t recruit enough volunteers, or the drug doesn’t work in large enough numbers. Genetics-based precision medicine could better pinpoint which patients are likely to respond to a certain treatment, which means clinical trials could be shorter and smaller. “It’s going to require all of us to think differently about how we can make this happen for patients,” says Cohn. “I have no doubt that we will.”

Meanwhile, he’s racing against the clock to help Gavriel and many other patients with genetic diseases. “There’s so much excitement among the people in my laboratory because we feel like we can really make a difference.”

A new way to understand cancer

The mapping of the human genome in 2003 showed us there are about 20,000 genes in a human cell. What it didn’t show us is which genes are essential for a normal cell to grow and divide. Or which genes are essential to make a cancer cell grow and divide. Knowing this could help us understand which genes to target with specific drugs in order to kill only the cancer cells, while leaving healthy tissue intact.

One of the best ways for researchers to learn how genes function is to switch them off and watch what happens. Last fall, a team led by Jason Moffat, professor of molecular genetics at the Donnelly Centre for Cellular and Biomolecular Research, did exactly that. Remarkably, in a single experiment, Moffat and his team used CRISPR to switch off, one by one, almost 90 per cent of the entire human genome, or more than 17,000 genes. Of these, they discovered that only about 10 per cent are essential for the survival of a cell; the rest are presumed to have more minor functions.

Focusing on cancer cells, Moffat’s team was able to switch off the genes in five different cancer lines, including brain, ovarian, retinal and two types of colorectal cancer. “The big question is, will CRISPR actually solve cancer?” asks Moffat. “And the answer is, it might help us come to a very detailed understanding of cancer.” Some blood cancers with very defined, consistent mutations in the genome might be fixable through direct CRISPR gene editing, he says. Other cancers are trickier.

“Most cancers have their genomes completely messed up, with each cell having a very different genome,” explains Moffat, who is also Canada Research Chair in the functional genomics of cancer. But while the genomes are very diverse, the proteins produced by those genomes are often more consistent. “So instead of targeting each genome, we’re trying to figure out how to target those proteins.” Attacking those targets may involve either new or existing drugs. For example, Moffat and his team found that metformin, a diabetes drug now in clinical trials for cancer, was effective against brain cancer cells and one type of colorectal cancer cell but useless against other cancers. They also found that two antibiotics – chloramphenicol and linezolid – killed another type of colorectal cancer cell. His lab has recently developed new biologicals – drugs based on natural sources such as cells – to target pancreatic cancer. Moffat is working with several startups to move drug development forward.

“CRISPR’s not going to cure cancer,” Moffat says, “but we’re pretty excited by CRISPR’s potential to give us a much faster way to get a comprehensive picture of what’s going on in many different cancers.”

Potential tool against superbugs

When we think of antibiotics, we generally picture a drug that can kill bacteria. But that’s not the only kind of antibiotic.

Equally deadly to bacteria is a bacteriophage – literally, “bacteria eater.” Bacteriophages, or phages for short, are viruses that can hijack a bacterium’s DNA and take over. These phages, the most common organisms on Earth, have been called natural antibiotics.

In the ongoing war between bacteria and viruses, bacteria have evolved their own CRISPR defense system to protect against invading phages. But Alan Davidson, a professor in

the departments of molecular genetics and biochemistry, found that phages are fighting back. In 2012, Davidson's lab was the first in the world to identify anti-CRISPRs: proteins that can bypass a bacterium's defenses. "We discovered these genes that turn off the CRISPR system," Davidson says. "No one had ever seen such things before, so that was a very exciting discovery."

Why all the interest in anti-CRISPRs? With antibiotic-resistant diseases on the rise, phages that kill bacteria could potentially be used in place of conventional antibiotics. Davidson is particularly interested in phage therapy to treat lung infections in people with cystic fibrosis, the most common fatal genetic disease among children and youth in Canada. Patients are vulnerable to deadly infections caused by *Pseudomonas aeruginosa*, a ubiquitous environmental bacterium that is increasingly resistant to antibiotics. While phage therapy has been used in parts of Eastern Europe, Davidson says rigorous studies have yet to be done. He thinks they should be. Using a virus to fight a bacterial infection comes with its own risks – what if the phage, which can carry virulent genes, makes the patient worse? But Davidson says studies in mice are very encouraging.

Since it's becoming increasingly difficult to find antibiotics that work against highly resistant bacteria, Davidson says, "It's very important to have these alternative approaches at the ready when all other approaches have been exhausted. In the longer term we'll get better at developing these things, and they may take over as the main treatment."

So far, several phage-based therapies have been approved for use in food in the U.S., including a spray formulation to kill listeria, a food-borne bacterium, on deli meats.

Davidson says he didn't set out to work on CRISPR at all, until his basic research led him to the surprising discovery of anti-CRISPRs. "It's fantastic how in basic research you can start working on something just because it's interesting and cool – not research tied to a particular problem – and you can discover something very unexpected that may have exciting implications for science."

Marcia Kaye (marciakaye.com), of Aurora, Ontario, is an award-winning writer.

The Ethics of Gene Editing

Research using CRISPR/Cas9 gene editing is moving so fast that some worry the technology could spin out of control. Already, research teams in China are using CRISPR in highly controversial medical experiments on non-viable human embryos. A team at Harvard University is editing elephant DNA in a bid to resurrect the long-extinct woolly mammoth. British scientists have used CRISPR on mouse egg and sperm to change the colour of the offspring's fur. A U.S. entrepreneur sells DIY CRISPR kits online for under \$200, so you can edit genes on your kitchen table. Is the genie out of the bottle? Are we entering a world of designer babies, CRISPR critters, rogue scientists and zombie apocalypses?

There's no reason to panic, but the consensus of scientists around the world is that there is reason to create a universal regulatory framework around CRISPR. While there's widespread support for basic research using CRISPR, an international gene-editing summit held last December in Washington, D.C., declared the technology should not be used in embryos intended for pregnancy. "We just don't know what the implications would be for future generations," says Yvonne Bombard, a U of T professor in the Institute of Health Policy, Management and Evaluation, and a scientist at the Li Ka Shing Knowledge Institute at St. Michael's Hospital in Toronto.

CRISPR may one day be capable of making physical "enhancements" to ensure a certain height, eye colour, perfect pitch or 20/20 vision, but we're nowhere close to that now. Canada's Assisted Human Reproduction Act bans the genetic altering of a human cell or embryo that could be passed down to descendants. "[This kind of alteration] has been debated for many years from many different perspectives and has been traditionally viewed almost universally as a line that should not be crossed," Bombard says.

Bombard is part of a working group with the American Society of Human Genetics, which is currently developing guidelines, as are several other organizations, including the National Academy of Sciences, the National Academy of Medicine and the International Society for Stem Cell Research.

As for the entrepreneurs and DIYers who are editing genes at home, the kits allow only for the making of novelties such as colour-changing yeast or harmless glow-in-the-dark bacteria. Still, the coming regulations will likely cover these bio-hackers, too.

– MARCIA KAYE



BY Scott Anderson AND Stacey Gibson

ILLUSTRATION BY Katie Carey

Followings

They don't act on TV or in movies. They're not pop stars or bestselling authors. But these six U of T alumni, faculty and staff have achieved a new kind of celebrity status, attracting tens of thousands of followers through social media platforms such as Twitter, Facebook and Instagram



Loving the Aliebn

Jonathan Sun tweets funny and heartfelt observations about what it means to be a 21st-century human



In person, Jonathan Sun (BASc 2012) comes across as thoughtful and articulate, which is not surprising, since he's a PhD student in urban studies and planning. But, as "Jomny Sun" on Twitter, he is an "aliebn confused abot humamn lamgauge" whose droll, misspelled comments about life on Earth and the weirdness of being human have earned him more than 150,000 followers. "Look," he writes in one of his most popular tweets, "life is bad. evryones sad. we're all gona die. but i alreedy bought this inflatable boumncy castle so r u gona take ur shoes off or wat."

Sun grew up in Toronto, and created the alien persona in 2012 when he left the city to pursue a master's degree at Yale University in New Haven, Connecticut. "At the time, I felt very disconnected from home," he says. "New Haven is a small town compared to Toronto. There were subtle cultural differences in going from Canada to the U.S. that made me feel like an outsider. And I was an engineer in an architecture program. All of that contributed to the feeling that I was by myself in a completely new environment, trying to figure things out."

He jokes that he struck upon the idea of an alien confused about language as an excuse for making typos, but adds that he also wanted to give his writing a disarming and unpretentious voice. He says "human language," from the perspective of an alien, refers also to what's *not* spoken. His character is trying to decipher the nuances of emotion, to navigate the heart's terrain.

Much of what people post to their social media accounts is relentlessly sunny. "There's definitely a shying away from honest, true emotion," says Sun. In his own tweets, he tries to be open with his feelings:

sees my own reflection in the store window excubse me, yes how much for the sad ghost.

↩️ ↻️ 💙 ...



NAME Jonathan Sun

ACTIVE SINCE 2009

FOLLOWERS 156,415

FOLLOW @jonnysun

Q&A with Jonathan Sun

How much time a day do you spend on Twitter? No more than five or 10 minutes at a time, but multiply that by however many times a day I check it, which is very often on days that are either relaxed or high stress.

Does your phone ever leave your person? When I have to put it through the X-ray machine at customs!

What one item would you want to take into space with you? Does my phone count? If not, a pen and a notebook.

Recent thrill... Being a guest on the podcast "How to Be a Person," with Mike Drucker and Jess Dweck – both writers for *The Tonight Show Starring Jimmy Fallon*.

Favourite Twitter voices... It's seriously impossible to narrow it down – there are so many brilliant people.

Comedian you'd most like to collaborate with... My friend Kevin Vidal, who was my writing partner for Skule Nite and is now a Second City Toronto alum. I can't wait to work with him again.

Where's home? Home is wherever your family is, past, present and future. You'd be lucky if those are all the same place.

Sometimes the pain is palpable:

when u die, they play u a recording of all the times somone said "i love you" to u and u didnt hear it.

↩ ↻ ♡ ...

Sun's tweets may be short – they have to be – but they defy quick consumption. They urge readers, inundated with cat videos, selfies and pictures of someone's lunch, to pause and reflect on simple moments that are freighted with meaning:

as we walked, we watched our breath in the cold air remind us that what was once ours can so easily belong to the world.

↩ ↻ ♡ ...

These weightier examples only tell half the story, though. Sun wrote for and directed Skule Nite, the U of T musical sketch revue mounted each year by engineering students. As an undergrad, he was part of a campus comedy community that also performed at Second City, and he sees his Twitter feed as the latest outlet for his comedic impulse. Many of his tweets poke fun at contemporary life, and he occasionally riffs on current events or issues:

hey sorry i just saw this mesage u sent last month even tho all my notifications make sounds and my phone is in my hand even when im sleeping.

↩ ↻ ♡ ...

Sun remained anonymous for the first few years he was posting, partly in fear of the personal attacks that anyone who's active online can be subject to and partly because he didn't think people would respond to comedy by a Chinese-Canadian. After revealing his identity, Sun received a lot of supportive feedback, including from Asians who told him they "never see Asian people represented in comedy or entertainment or writing. The impact has been overwhelmingly positive," he says.

For his PhD thesis at the Massachusetts Institute of Technology, Sun is investigating how social media informs people's perceptions of cities and landmarks. At the same time, he's working on a scheme that will push his writing beyond Twitter, but he declined to say any more about it except that he will unveil it next year. "I'm being very careful about this. A lot of these projects can be seen as quick sell-outs and then the magic disappears."

For now, Sun is grateful to have found an outlet for his artistic expression that has connected with so many people. "I think that's what all creative people are trying to do – find a home for their work." – SA



NAME "U of T Drizzy"

FOLLOWERS 17,245

ACTIVE SINCE 2015

FOLLOW @uoftdrizzy

Views

from UTSC



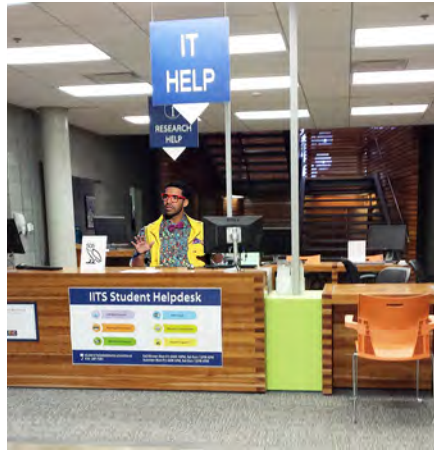
Drake doesn't attend U of T Scarborough, and never did, but a fan of the Toronto hip-hop star has created a popular Instagram account that imaginatively uses Photoshop to suggest that he does.

The "UofTDrizzy" feed is filled with shots of Drake grabbed from the Internet and superimposed onto recognizable UTSC locations. There's Drake waiting for the 38 bus! There he is chilling at the UTSC Library! Hey, isn't that him hanging out at the Meeting Place? Captions accompanying each photo transform Drake's lyrics into descriptions of what it's like to be a student at UTSC; offering "his take" on everything from course evaluations to mid-terms to ROSI.

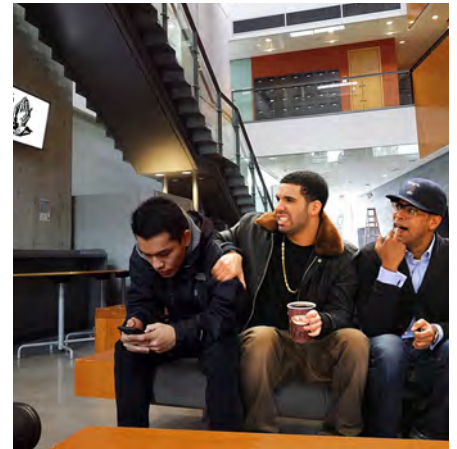
"I wanted to do something creative and funny, and just

loved the absurdity of the idea of Drake being a UTSC student," the anonymous artist behind UofTDrizzy told the *Varsity*. Generating some "love" for UTSC, which the artist describes as U of T's "underdog" campus, was also a big part of it. The account has picked up more than 17,000 followers, including Drake himself. In May, poster-sized blow-ups from the feed appeared on the St. George campus as part of the city-wide Contact Photography Festival.

Has the musician ever reached out through a message or liked one of the photos? "The likes come so quickly that it's tough to see unless I go through the list," the artist told UTSC's *The Underground*. "It's all good. He's busy...with assignments and all." - SA



I wanted to do something creative and funny, and just loved the absurdity of the idea of Drake being a UTSC student





NAME Catherine Connors

ACTIVE SINCE 2007

FOLLOWERS 23,298

FOLLOW @herbadmother

My position for years has been that some of the best writing that you're going to find on the Internet is by women rooted in the experience of being a mother



What Makes a Good Mother?

Catherine Connors writes poignantly – and humorously – about the joys and perils of parenting



In 2005, Catherine Connors (MA 2000) was immersed in her dissertation work at U of T – which centred on the history of women in political thought. She was fascinated by how mothers, throughout time, told their stories: their narratives were largely kept private, recorded within diaries and letters. In the public realm, women’s voices were silenced.

Later that year, Connors had her first child, Emilia. A few weeks after her daughter was born, Connors – in a new-parent state of pure exhaustion and struggling with postpartum depression – sat down at her computer and read her first mom blog online. It was, as she puts it, “the horse and buggy years of social activity on the Internet” and she had never heard of parenting blogs. “The new mom in me was like, ‘Oh my God, I’m not alone’ and the academic in me was like, ‘Wow, here is a public forum for storytelling about the family’ – a space for ordinary mothers to tell their stories.” It was the first time in history that women had a widely available platform, Connors adds. “It just kind of blew my mind.”

Connors never went back to academia. Instead, she started her blog – soon entitled “Her Bad Mother” (which takes aim at philosophic and literary characterizations of “bad” women and seriously questions what it means to be a “good” or “bad” mom). Like American writers Anne Lamott and the late Caroline Knapp, Connors has the ability to highlight the profound through the prosaic – whether she’s writing on sleeplessness, cliques and bullying, or stuff her kids have wrecked.

And the humour, there’s always the humour, in her stories

of parenting the awesome forces that are Emilia, 10, and Jasper, 7. In “Rebel Angel,” for example, she writes about her and her husband’s attempts to discipline their then-three-year-old daughter: Emilia battles against their rules like “a tiny little *sans-culottes*, or a tiny little Robespierre, or some explosive hybrid of the two. She resists, and we cave to her resistance, and like France of the late 18th century, we go down in flames.”

Along with her academic background, what makes Connors’ voice unique is her fierce concern with feminism and empowerment. “How do you raise a girl to get by in this world in all the ways she’s going to have to get by – but also seize it by the neck and give it a good shake?” she says. Her blog entries chart her attempts to shatter gender stereotypes for both her daughter *and* son: from telling Emilia to ditch the tomboy label to teaching Jasper that his love for My Little Pony is not shameful.

Connors’ Twitter account boasts 23,000 followers, and Her Bad Mother was named one of *Time*’s top 25 blogs of 2012. Last year, she left her job as editor-in-chief at Disney Interactive Family in Los Angeles to start her own company, Demeter Media, which develops programs to empower girls. Connors has gone from being one of about 8,000 mommy bloggers in the world to one of millions. “The stories that we have as mothers can be deeply thoughtful, very philosophical, very beautiful, very poetic, as well as very funny and edgy,” she says. “My position for years has been that some of the best writing that you’re going to find on the Internet is by women rooted in the experience of being a mother.”

– SG



NAME **Joe Silveira**

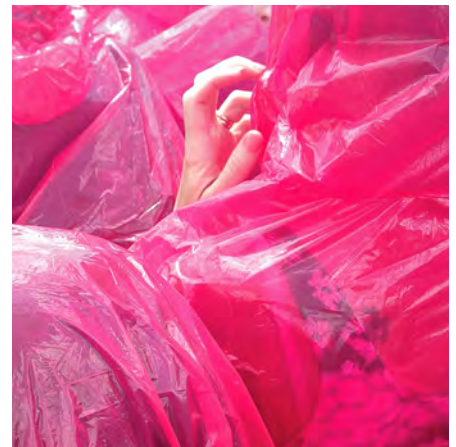
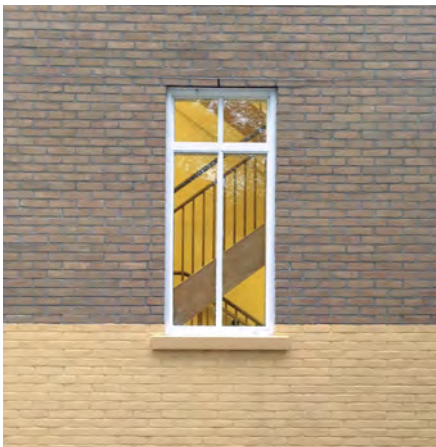
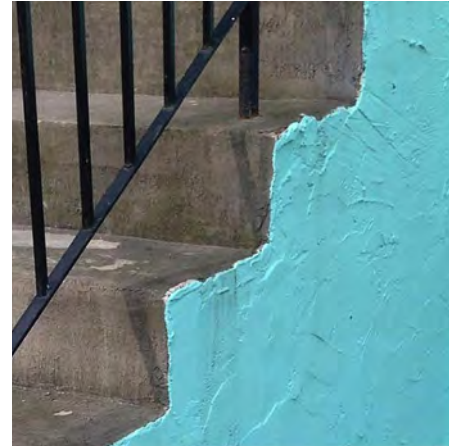
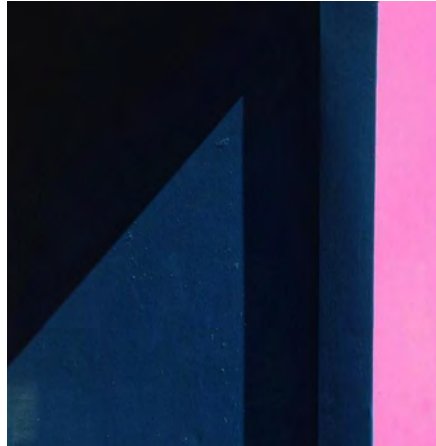
ACTIVE SINCE **2012**

FOLLOWERS **12,000**

FOLLOW **No longer active**



I think it comes from walking a lot; practice, too. The more I noticed, the more I would look



The Toronto No One Notices



In 2012, Joe Silveira, a graphic designer with Advancement Marketing and Communications at U of T, started taking pictures of shapes and colours that caught his eye while roaming downtown Toronto. He posted many of the images to Instagram, and attracted thousands of followers. Among them was a small independent publishing house that subsequently published a book of Silveira's "architectural surface ornamentation." Scott Anderson spoke with Silveira about his art.



How would you describe your Instagram photos? It's a graphic designer's interpretation of the things that no one notices. I'll often zoom in on a particular element and extract a texture, a pattern or a colour.

Did you set up the photographs? No, never. They're just things I came across.

You must be pretty observant. I think it comes from walking a lot; practice, too. The more I noticed, the more I would look.

Was there ever a conscious decision, "This is what I'm going to photograph and put on my Instagram feed?" It wasn't thought out at all, initially. But once people started to pay attention, it became more deliberate, for sure.

You attracted thousands of followers. How? I don't know. I thought I'd put up some images and my friends would see them and it would stay at that. But it turned into something completely different. I followed people I knew, and I started following people I admired: artists and designers. I didn't think my photos were that interesting, but these artists noticed what I was posting and started following me back.

What did you get out of the experience of building such a large following? I met a lot of people who are now my friends. It also gave me some opportunities I don't think

I would have had access to otherwise. I was approached to do a book and then, through the book, I started a small publishing press this past year. I produce four artists' books a year; very small scale. It turned me on to a whole world I was not oblivious to but didn't feel a part of. I'm grateful for that.

It seems social media worked the way it's supposed to...

Yes! You follow the things you're inspired by and you meet like-minded people. It sounds so cheesy but it's true. Facebook was never like that for me, though.

Why did you shut down your Instagram feed when it was doing so well? People were expecting the same thing over and over, and I got tired of it. It became less fun.

How would you describe your relationship to social media now? I'm still suspicious. Instagram occupied so much of my free time, and it was distracting. I couldn't read for more than 10 minutes at a time. I couldn't sit through a movie at home any more. You can definitely give social media more mental weight and energy than it deserves. I fell into that trap.

Did you get much feedback from your followers? People were very supportive, which is nice, especially if you've had a bad day.

Why did you call your book *So So Tired*? A lot of the photos in the book are from 2012. I was having a tough year and literally felt so tired. A lot of the subject matter is also stuff people are indifferent to: concrete, old paint, trash. I also just thought it was funny to call your first photo book *So So Tired*.

The photographs are all printed with a slightly fuzzy look.... It's called Risograph printing. The photographs are reproduced in a way that's sort of lo-fi. I liked that.

Did you want to add anything else about your work? No, I feel I already said too much.



NAME Anabela Piersol

ACTIVE SINCE 2012

FOLLOWERS 23,520

FOLLOW @fieldguided



In the Pink

Anabela Piersol showcases independent clothing designers, as well as her own lovely creations



Visiting Anabela Piersol's Instagram account is probably a bit like entering a Victorian lady's parlour for low tea: Ever the refined host, she will talk to you about art, beautiful design (both interiors and fashion) and literature. Flowers and fluffy cats fill her space. There is occasional discussion of knitting, tea and scones. A sense of romanticism prevails.

The one Victorian element wholly absent from Fieldguided (the name of her blog, Instagram, Twitter and Flickr accounts) is stuffiness. While her love of design – often modern and clean – dominates, she tackles many subjects well: from reviews of cool Toronto spots, to her love of ballet and Umberto Eco – amidst lots and lots of pink. She delights in

I like to keep things light and fun, and goals add more pressure



showcasing independent clothing designers and businesses, and also sells her own lovely designs – from totes to screen prints. A dreamy, whimsical quality runs through her sites – with a smattering of kitsch (a pic of Piersol talking on a Cabbage Patch Kid phone in a thrift shop; a photo of a prayer candle featuring rapper Drake, resplendent in a crown of flowers) thrown in for good measure.

While Piersol’s studies don’t speak to a love of design – she has a BA in medieval studies (2003) and an MA in information studies (2008) from U of T – her work does: she designs and typesets books for a research project at Robarts Library. “My co-workers don’t really know about this side of my life, weirdly,”

she says of her social media activities. “It just doesn’t come up.”

Piersol, who runs the sites with her husband, Geoff (BA 2004 UC, MIS 2006), doesn’t strategize in terms of branding, increasing followers or expanding design sales. “I like to keep things light and fun, and goals add more pressure.” She just enjoys new media, and is proof that doing what you enjoy attracts people to you: her Instagram following alone is 23,000. “The blog started as a quiet, creative outlet for me to work on in my spare time,” says Piersol, whose first social media account was Friendster almost 15 years ago. “I connected with people who were doing similar things – and it just grew from there.” – **SG**



NAME Yani Macute

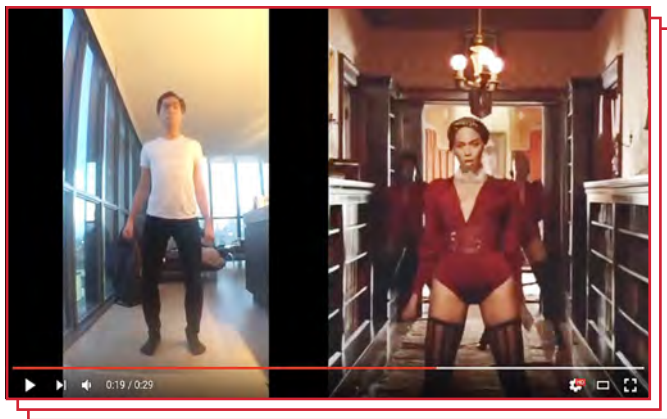
ACTIVE SINCE 2015

VIEWS 1.2 million

FOLLOW Yani Macute

Every Move She Makes

Video mimic Yani Macute takes pop star fandom to the next level



There are the Beyoncé fans who sing along to the pop star's every song and snap up tickets to her shows. And then there's Yani Macute, a program co-ordinator at U of T's Centre for Aerial Robotics Research and Education, who, earlier this year, may have redefined the meaning of Beyoncé fandom.

In February, mere minutes after "Queen Bey" released her video *Formation*, Macute, 24, had uploaded his own split-screen version to Facebook – on one side Beyoncé, in a southern plantation house, singing, "My daddy Alabama, Momma Louisiana," and, on the other, Macute, in his Toronto apartment, matching her choreography *exactly*, down to every last booty pop and hair flip.

His video went viral and now boasts more than 1.2 million views. "I was at a house party the day I released it and everyone thought I was a loner, because I spent the whole time in the corner refreshing my phone," says Macute. "It was crazy. It went from 500 views to 15,000 in about an hour."

Macute, who has been dancing since he was a child in the Philippines, says he learned the *Formation* choreography in half an hour. He never took dance classes, but says it was common for the kids in his community to perform at social gatherings, such as birthday parties. It also helped that this wasn't the first time he'd mimicked Beyoncé's steps. "My mind processes her moves really quickly."

Why Beyoncé? Macute attributes his obsession to her music and lyrics – and what she represents as a powerful woman in the music business. "She gives me confidence," he says. "She empowers not just women, but everyone." He's received a flood of comments about the video – mostly positive, but some homophobic and racist, too. Although Macute, who is gay, chooses not to respond to "the haters" with his own comments, he's grateful that many of his fans have fought back on his behalf.

Macute suffered mild disappointment when Beyoncé's new HBO film, *Lemonade*, didn't feature any dancing he could imitate, but he and his iPhone camera will be ready when the next video drops. "I'm not trying to prove anything to the world. I just love doing it," he says. "But getting on *Ellen* would be nice." – SA

Keen Tweets

No wonder the Twitter bird is blue!
Some of the platform's biggest influencers
are U of T alumni and professors.

Margaret Atwood
[@MargaretAtwood](#)

A leading light of Canadian letters, Atwood (BA 1961 Victoria, MA 1962) tweets about the natural world – mostly the need to protect it – and the world of books.

↩ ↻ ♥ ...

1.2 million followers

Malcolm Gladwell
[@Gladwell](#)

You could probably spend much of your time reading the articles that Gladwell (BA 1984 Trinity) recommends – or the stories he writes for the *New Yorker*, about which he offers tantalizing behind-the-scenes tweets.

↩ ↻ ♥ ...

365,000 followers

Naomi Klein
[@NaomiAKlein](#)

Klein, a former editor of the *Varsity* and the author of *No Logo*, promotes her activist work and the causes she believes in.

↩ ↻ ♥ ...

329,000 followers

Shawn Ahmed
[@uncultured](#)

Ahmed (BA 2005 Trinity) founded the Uncultured Project to foster development in poor communities in his parents' native Bangladesh. He tweets about this effort and issues that are close to him, such as being Muslim and gay.

↩ ↻ ♥ ...

242,000 followers

Richard Florida
[@Richard_Florida](#)

Insightful commentary from the Rotman School of Management prof on all things related to the “creative class” and the social and economic geography of cities, with a sprinkling of American politics thrown in.

↩ ↻ ♥ ...

186,000 followers

Craig Kielburger
[@craigkielburger](#)

Kielburger (BA 2006 Trinity) promotes the activities of his charitable organization Me to We. Celebrity-watchers will appreciate that he's often photographed with famous people.

↩ ↻ ♥ ...

135,000 followers

Lyse Doucet
[@bbclysedoucet](#)

Doucet (MA 1982), the BBC's chief international correspondent, amplifies news coming out of the Middle East and provides some personal context.

↩ ↻ ♥ ...

113,000 followers

John Tory
[@JohnTory](#)

Toronto mayor Tory (BA 1975 Trinity) is clearly a big supporter of the city's professional sports teams. He also shares news from City Hall on everything from raccoon-proof green bins to transit to innovation.

↩ ↻ ♥ ...

107,000 followers

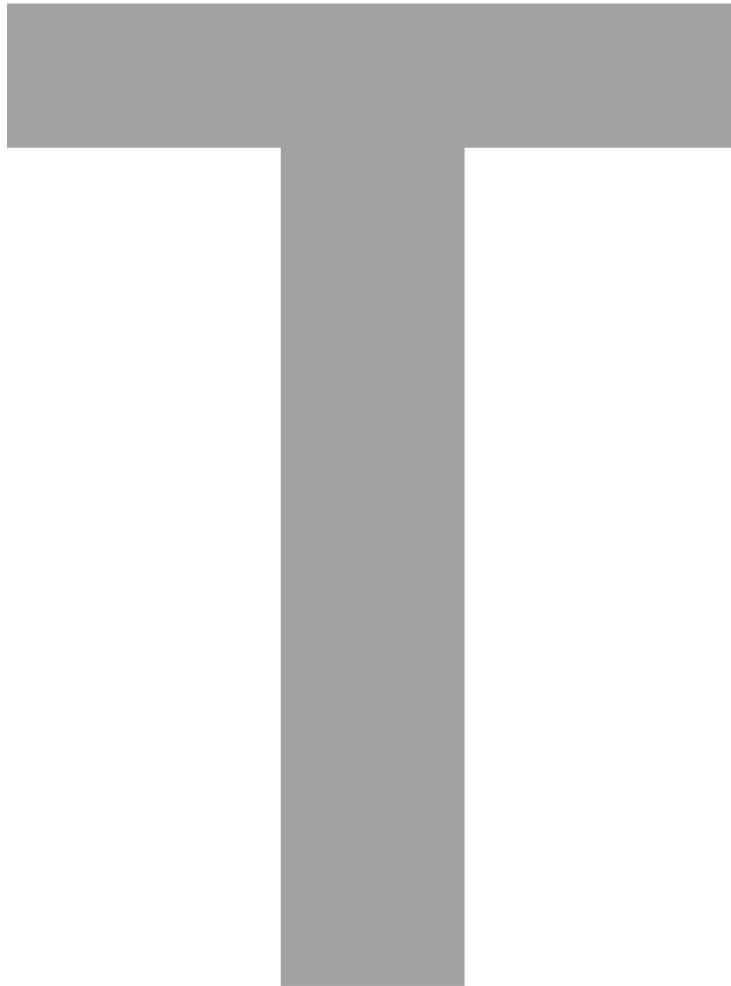
SETH WATT, 27

After high school, Watt took several trips to the Middle East where, as an androgynous person, people often thought he was a man. Now, after transitioning, he identifies as queer and is open to dating both women and men.



BY MARGARET WEBB
PHOTOGRAPHY BY WYNNE NEILLY

GENERATION



For trans students at U of T, the fight for rights and equality is about much more than just washrooms

AS A FIRST-YEAR STUDENT at Victoria College, Cassandra Williams never considered getting involved in campus politics. She concentrated on her studies in philosophy and cognitive science, and, in her spare time, hung out with friends in Toronto's punk music scene.

But then Williams came across some people on Facebook who were harassing LGBTQ and foreign-born students, and she wanted to do something to counteract the "jerks." So, in second year, she and a few friends created their own Facebook page – an explicitly inclusive and welcoming place where first-year students could find out from their upper-year classmates what was going on, meet other students and get information to ease what can be a stressful transition from high school to university.

For several months, Williams started her days by answering questions from anxious new students, primarily about how to navigate administrative complexities such as changing courses and getting financial aid. The page was well received and the U of T Students' Union (UTSU) endorsed it. "I was convinced that I have a perspective that most people don't because of the way I've interacted with students," she says. Friends began pressing her to run for student government.

Earlier this year, she did exactly that. And in March, Williams was elected to the position of vice-president, university affairs. Her success marked the first time an out trans person had ever been elected to the UTSU executive. Her peers on the "Hello U of T" slate were "completely fine" with the fact that she had recently come out as trans, she says, and no one thought to make her historic campaign an issue, either celebratory or otherwise. "We're a diverse group of students," she says of her running mates. "It kind of flew under the radar."

Williams is one of a growing number of U of T students who are identifying as trans – whose gender identity doesn't match the gender they were assigned at birth. Some may seek sex-reassignment surgery – also called medical transition or gender confirmation surgery – but many will not. Falling within the umbrella of trans are also students who reject the notion that there are only fixed "male" and "female" genders; they describe themselves as more fluid, or genderqueer. As generations have fought for equality between genders, races and classes, these students want the right to determine their own gender. Many are active on campus, challenging trans discrimination when they see it and fighting for change through their passions for politics, athletics and research.

U of T doesn't track how many students identify as trans or genderqueer. But professors engaged in trans research and teaching at U of T say that more such students are visibly – and proudly – coming out. Elspeth Brown, a history professor at the Munk School of Global Affairs who conducts research on trans issues and history (see p. 63), believes that high-profile activism and a proliferation of trans characters on TV shows such as *Transparent* and *Orange Is the New Black* have helped today's students understand their own gender identity at a younger age. Medical technologies – hormones and gender-confirmation surgery – have also made the process of transitioning more accessible, although getting that health care

Many trans people are active on campus, fighting for change through their passions for politics, athletics and research

CASSANDRA WILLIAMS, 20

Williams says she "didn't have a big coming-out thing." "Years before I knew I was trans, I experienced gender dysphoria. Had there been trans stuff in the [middle school] curriculum, I would have realized I was trans."





Trans Billionaire Gives to U of T's Bonham Centre

Jennifer Pritzker's support will create a new third-year course in trans studies

Earlier this year, U of T's Mark S. Bonham Centre for Sexual Diversity Studies honoured a retired U.S. Army officer who has become a champion for trans rights and scholarship.

Lt.-Col. Jennifer Pritzker, a billionaire investor and philanthropist, came out as trans three years ago. Since then, she has financially supported trans research at the University of Victoria and the Palm Center, a think tank at the University of California, Santa Barbara. The Bonham Centre recognized Pritzker at its annual awards gala, held in April at the Great Hall in Hart House.

Pritzker has also made a donation to U of T – to endow a new third-year trans course at the Bonham Centre, which will complement an existing fourth-year seminar. She says she hopes her investment in higher education will lead to “less fear and apprehension of trans people” and greater inclusion.

Pritzker doesn't see herself as a trailblazer for either her high-profile transition from male to female or for championing trans research, but rather “as someone who occasionally sews the necessity and opportunity to take a few steps out of the box.” – MW

Misgendering is one of the many kinds of violence against trans people that occur every day

IRIS ROBIN, 22

Born in China, Robin grew up in England and moved to Canada in 2012 to attend U of T. “My mother is a feminist and I grew up thinking there isn't anything I can't do.” Robin strongly dislikes gender stereotypes and last year organized a conference on asexuality at U of T. “It's important to share experiences,” Robin says.

is still difficult and can take years.

Nick Matte, who has taught trans studies at the Mark S. Bonham Centre for Sexual Diversity Studies for eight years, says current students accept gender diversity more readily. They understand the difference between one's sex – being assigned male or female at birth, based on cultural assumptions about the meaning of genitals – and gender, a social construct in which how a person feels about and expresses their own sense of self meets the expectations and interpretations of others. While many trans people publicly switch from one traditional gender role to another, some students see the gender binary as a limiting and even false construct; instead, they view gender as a rainbow of options, a sort of LGBTQ plus, plus, plus that can continue to evolve.

Despite the growing acceptance of trans people on campus, coming out is rarely easy. Williams says she enjoys the support of family and friends and describes herself as “pretty thick-skinned.” But professors have mistakenly called her a “he,” which Williams says is uncomfortable to correct. During an election debate, an opponent also referred to Williams as “he” – even after candidates had stated the pronouns they use to refer to themselves. Williams' statement of her version of events and a demand for an apology caused a backlash on social media. But she asked her opponents to issue a written apology, not only for herself but for the opportunity to educate others.

Misgendering is one of the many kinds of violence against trans people that occur every day, says Williams. “It's not just that they're messing up pronouns. They assume the wrong things about you. A lot of people conceive of a trans woman as a man who wants to be a woman. Or they would assume you have a typical male perspective, and that's not accurate.” Williams, who is tall and willow thin, admits her body may not read as what most people think of as a woman's, but she says it's wrong to conceive of her as anything other than a woman. Wearing makeup and taking hormones will help her pass but she also feels it's essential for her to hold onto the trans label. “I understand why others would want to be stealth – to adopt a gender presentation or lifestyle in order to prevent oneself from being recognized as trans, often to avoid the persecution that goes along with being trans. But I think it's important that there are openly trans people to show that trans people are everywhere.”

Iris Robin (BA 2016 Trinity) would prefer to transcend gender altogether. Robin was assigned female at birth but doesn't identify as male or female, uses the pronoun “they” rather than “he” or “she,” and wears men's clothing. Gender, says the former *Varsity* news editor, is not the most relevant thing about a person's identity, yet it's often the first thing people see. Names, clothing and even many careers are “coded” as male or female, says Robin, and people tend to “make snap judgments” based on these codes. Last year, Robin and another student challenged their peers at Trinity College to change a reference to “men and women” in the student government constitution to “members.” It took some persuasion, but the amendment eventually passed. All “members of Trinity College” are now constitutionally included, and traditionally segregated meetings of “women” and “men” of the college no longer take place; instead, all members of Trinity College attend together. “I'm glad we put these issues on the radar,” says Robin.

At the same time, U of T has responded in a variety of ways to the needs and concerns of trans and other gender non-conforming students. Since 2009, the university has allowed students to change their name and gender designation on student records without legal documentation (as long as they are Canadian citizens). They can also change their email address and get a new student ID card so that professors won't mistakenly misgender or "out" them. Currently in development are forms that will make it even easier and faster for students to change their name or gender, or remove their gender designation altogether.

This past year, U of T's Sexual and Gender Diversity Office started a peer discussion group called Gender Talk, where students can ask questions about gender identity, share strategies for dealing with discrimination and make friends and socialize. The Career Centre now offers one-on-one advising to help trans students prepare for job interviews with companies that may not be quite so accommodating.

As well, the university recently undertook a review of all of its public buildings with the aim of providing clear information about – and increasing the number of – single-user, all-gender washrooms. As part of the Change Room Project, launched last year, posters were installed in some locker rooms in athletic facilities across the three campuses featuring quotes from LGBTQ students about the uncomfortable stares, hateful comments or outright bullying they'd experienced in those spaces. The project's goal: to build awareness and encourage locker-room behaviour that is more inclusive and compassionate.

Allison Burgess, U of T's sexual and gender diversity officer, says these initiatives show that the university is responding to what it hears from trans students. "At U of T, people are working to create inclusive and welcoming spaces so that trans and non-binary students, staff and faculty are comfortable to be out. It's not perfect and of course not everyone feels comfortable to be out," she says. "But there are a lot of great initiatives that are helping all of us to learn about the multiplicity of gender identities."

Kinnon MacKinnon, a PhD student in public health, is striving to change perceptions of trans people in athletics and the health-care system. MacKinnon competed nationally in skiing and snowboarding as a teenage girl, and won a gold medal in men's powerlifting at the Gay Games in 2014. MacKinnon, who's now 31, takes every opportunity to speak to audiences about being trans and an athlete. He points out that barriers to physical activity and sport go up long before youth enter university – when boys are picked on for being too girlish or vice versa. He cites a study that shows half of all trans people avoid going to the gym because they're afraid of being outed, taunted or bullied.

Feeling shunned has damaging repercussions. Trans people suffer higher rates of mental health problems such as depression, suicide, anxiety and eating disorders. But when they seek help, says MacKinnon, they can also face discrimination in the health-care system, which compounds their suffering. "There's a history of trans people being pathologized," he says, noting that they must get permission from psychiatrists in order to medically transition whereas the general population can undergo extensive cosmetic surgeries without counsel. Having mental health-care providers

“There’s a history of trans people being pathologized”

KINNON MACKINNON, 31

MacKinnon embraces the “trans” label, for public education and also because he doesn't believe in only male and female genders: “I can't situate myself in that framework.”





Partners in Transition

Prof. Elspeth Brown is interviewing partners of trans people as part of a project to record the stories of LGBTQ people

In 2010, Elspeth Brown, a history professor at the Munk School of Global Affairs, had been in a relationship for 13 years when her female partner decided to transition to a man.

Brown searched online for stories of other people in her situation, but found nothing. So she decided to interview partners of trans people herself, and turned it into a research project. Over the next few years she spoke with 50 women in the U.S. and Canada who were in relationships with women transitioning to men. (Since then two of the women she interviewed have themselves decided to become trans men.) “It was wonderful to connect with other partners and learn about the tremendous range of experiences,” Brown says.

Brown’s aims are to record the stories of partners of trans men in their own words and to expand the number of sources of information available about trans families and relationships. Up until recently, she says, the history of trans people has been written mostly based on documents such as police and medical records, which have typically provided a negative account. “My goal is to create an archival base from which people can write trans-positive histories.”

Her interview subjects have ranged in age from 20 to 50-plus, and there are significant differences in the experiences they’ve had, says Brown. The partners of younger people are more likely to have come out directly as trans and into an existing trans community whereas the partners of the older subjects had come out initially as lesbian, but didn’t feel comfortable in that identity. Only later did they come out as trans.

Brown’s oral histories of trans partners are part of a larger research project she’s directing called the “LGBTQ Oral History Digital Collaboratory.” This project connects 200 life stories of LGBTQ people in a virtual workspace where research team members can share ideas. – **SCOTT ANDERSON**

IDO KATRI, 30

Katri, a doctoral candidate in law, believes gender should be dropped completely from official identification but thinks it’s idealistic to get rid of gender completely.

act as “gatekeepers” to transition causes “a lot of animosity” among trans people. As a result, he says, many avoid seeking psychological help, even when they need it. For his PhD, MacKinnon is researching ways to reduce discrimination and increase understanding of trans people among health-care providers.

Ido Katri, a doctoral candidate in the Faculty of Law, is also conducting research to advance trans issues. In April, he helped organize a conference at U of T and spent the day bounding between seminars to introduce speakers on a range of trans topics. Katri says the opportunity to be at the forefront of such conversations is what drew him to the university. “A lot of the most innovative things [on trans policy] are happening in Toronto and Canada,” he says.

Katri, who was the first out trans student at Hebrew University law school in Jerusalem, is tracking transgender legal struggles internationally. In particular, he’s interested in how state law reinforces gender categories in ways that privilege some (such as non-trans, straight white men), and not others, such as racialized or trans people, who as a result suffer higher rates of poverty, joblessness, homelessness and incarceration. He thinks the state should stop “policing” gender by requiring everyone to check a male or female box on administrative forms. Rather, he thinks the state should recognize and support an individual’s right to determine their own gender.

That he has gained privilege by passing as a man is not lost on him. “The division between who gets taken seriously, who gets heard, is very much affected by gender. I’m hyper-aware of how women and gender variants are treated so I try to make opportunities for others to speak, to take up space.” Although he fought for his male identity, he continues to identify as trans. “My experience is the in-between-ness.”

Seth Watt (BSc 2016 St. Michael’s), meanwhile, has set his sights on being one of the very few trans people doing research in the neuroscience of transgenderism. He enrolled at U of T at age 24, found his passion in trans research and caught fire academically. He has won a slew of academic awards and compiled a near perfect GPA. Watt likes to talk about “hormonal” influences on the brain to avoid reinforcing any notion that there might be a “male” brain or “female” brain – or, in the case of trans people, a “male brain” born into a female body or vice versa. “That absolves society of its role,” he says. Watt describes a thought experiment: “If it were possible to grow up a truly wild child, separated from society, would anyone feel distress about their gender identity?” That is, would they feel distress if they grew up in a culture that did not demonize alternate gender expressions?

Watt arrived at U of T after transitioning from an “androgynous person.” Everyone at the university got to know him as a man and he says he found it “really addictive” being “mundane” and “boring” – being just “the normal guy I always wanted to be.” His trans research outed him to fellow students, but that didn’t affect how they treated him, except in one small way. “It’s not so bad if the worst thing you can expect from fellow students is perhaps too much interest,” he says. “They ask a lot of questions.”

Margaret Webb (BA 1985 UC) is the author of *Older Faster Stronger: What Women Runners Can Teach Us All about Living Younger, Longer* (Rodale Books, 2014).

Redefining Gender

These days, talking about sex and gender can involve a lot of specialized terms. Here's a guide

ASEXUAL Someone who generally does not experience sexual attraction. Asexual people can experience sexual arousal, romantic attraction and desire intimacy, but do not feel the need to act out those feelings in a sexual way. Asexuality is not the same as celibacy, which is the choice not to have sex.

CISGENDER Referring to an individual who has a match between the gender they were assigned at birth and the roles and behaviours considered by society to be appropriate to their sex.

GENDER A socially constructed system of classification that ascribes qualities of masculinity and femininity to people. Gender characteristics can change over time and are different between cultures.

GENDER DYSPHORIA The fifth edition of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (2013) replaced the entry "Gender Identity Disorder" with "Gender Dysphoria" and changed the criteria for diagnosis. The necessity of a psychiatric diagnosis remains controversial, as both psychiatric and medical authorities recommend individualized medical treatment through hormones and/or surgeries to treat gender dysphoria. Some trans advocates believe the inclusion of gender dysphoria in the manual is necessary in order to gain health insurance that covers the medically necessary treatment recommended for transgender people.

GENDER EXPRESSION How a person represents or expresses one's gender identity to others, often through behaviour, clothing, hairstyles, voice or body characteristics.

GENDER FLUID A person whose gender identification and expression shifts, whether within or outside of societal, gender-based expectations.

GENDER IDENTITY An individual's internal sense of being male, female or something else. Since gender identity is internal, one's gender identity is not necessarily visible to others.

GENDER NON-CONFORMING A term for individuals whose gender expression is different from societal expectations related to gender.

GENDERQUEER Used by some individuals who identify as neither entirely male nor entirely female.

LGBTQ An acronym standing for lesbian, gay, bisexual, transgender and queer.

TRANSGENDER A term for people whose gender identity, expression or behaviour is different from those typically associated with their assigned sex at birth. Transgender is not a sexual orientation; transgender people may have any sexual orientation. "Trans" is short for "transgender."

TRANSGENDER MAN A transgender individual who currently identifies as a man.

TRANSGENDER WOMAN A transgender individual who currently identifies as a woman.

TRANSITION The time when a person begins living as the gender with which they identify rather than the gender they were assigned at birth, which often includes changing one's first name and dressing and grooming differently. Transitioning may or may not also include medical and legal aspects, including taking hormones, having surgery or changing identity documents to reflect one's gender identity.

SOURCE revelandriot.com/resources/lgbtq-and-trans-definitions/

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All About Alumni

“John Lennon was standing at centre stage, approached by absolutely no one”

Alum Robert Morris on his celebrity encounter
p. 71



Susan Bissell

The Children’s Crusader

One billion kids experience violence worldwide each year. Susan Bissell has devoted her life to ending the abuse

SUSAN BISSELL (BA 1987 Trinity, MA 1989) had studied how violent conflict affects children before working in Sri Lanka with UNICEF in the early 1990s. But nothing prepared her for what she saw in the country ravaged by civil war.

“It was devastating to witness how cruelly children were treated in the context of war,” says Bissell, whose prior knowledge came from her master’s research at U of T on children in Mozambique’s civil war, as well as a stint in UNICEF’s New York office.

The brutal physical danger for young people in Sri Lanka’s conflict was obvious, but Bissell also came to a deeper understanding of war’s devastating side-effects of trauma, abuse and neglect in children. She vividly remembers a boy there with cerebral palsy who was kept locked in a shed. His parents did not know what to do with him, and the war prevented support workers from reaching him.

This close-up view of suffering in Sri Lanka only strengthened her resolve to work on the front lines. “I knew that if I could be on the side of something that was going to help alleviate these children’s pain, that was the life I wanted,” she says.

Last fall, after more than 25 years with UNICEF, Bissell became the founding director of an unprecedented project aimed at protecting children worldwide: The Global Partnership to End Violence Against Children, which includes UNICEF, the World Bank, the World Health Organization and many NGOs dedicated to the cause. ►



Iceland's only Nobel laureate, the beloved Halldór Laxness, was awarded the prize in literature in 1955

Literary Midwife

Eliza Reid helps writers deliver prose at her Iceland retreat



Eliza Reid

ICELANDERS HAVE A SAYING that everyone “has a book in their belly.” As co-founder of the Iceland Writers Retreat, Eliza Reid (BA 1998 Trinity) is a literary midwife, helping writers birth new manuscripts in a fertile country for the written word.

“The retreat is my professional baby,” says Reid, “and Iceland is a great place to see it grow. It’s the land of the sagas, a major contributor to world literature and it boasts some of the highest literacy rates. And books are the most popular Christmas presents!”

Reid moved to Reykjavik in 2003. She is married to Guðni Th. Jóhannesson, who is currently running for president of the country. Along with editing *Icelandair Stopover* in-flight magazine, Reid produces

travel content for the *Globe and Mail* and other outlets. After her friend Erica Green returned from a writers’ retreat in San Francisco and raved about the experience, the two decided to start their own. They launched the Iceland Writers Retreat in 2014 to share the country’s literary heritage with wordsmiths from around the world.

This year’s retreat, which ran in April, welcomed more than 100 participants from 15 countries for workshops by writers such as Miriam Toews and U of T alum Vincent Lam. Icelandic authors led cultural tours: poet and writer Ari Trausti Guðmundsson guided participants around the Borgarfjörður region – the backdrop of many Icelandic sagas. “Iceland as a destination is a huge attraction for both participants and instructors,” says Reid. “It’s known for its natural phenomena, but we’re highlighting a cultural dimension that people might not otherwise be aware of. Authors whom I respect and admire are now pitching themselves to me to teach – it’s surreal.” – **AMY STUPAVSKY**

Strangers in a Strange Land

What do writers get up to at Eliza Reid’s retreat?



- When **Joseph Boyden** saw Björk at a restaurant, he gushed to her about her music – but, alas, she brushed him off. He also bought a huge stuffed raven, an important symbol in both traditional Icelandic and First Nations storytelling. It later appeared in a photo of his collection of “beautiful things” in the *Globe and Mail*.
- **Barbara Kingsolver** told her husband that for her 60th birthday in 2015, she wanted to see the northern lights. Coincidentally, the next day she received an invitation to the retreat – and a few nights after her April 8th birthday, she watched the aurora borealis flicker over Reykjavik.
- **Adam Gopnik** referenced “a fine writer’s retreat” in his *New Yorker* article “The Coffee of Civilization in Iceland.” He was also ahead of foodie trends and dined at Dill Restaurant, now considered one of Reykjavik’s best eateries, according to Reid. – **A.S.**

➤ “It sounds daunting, but violence against children is preventable,” she says. With an estimated one billion children experiencing violence each year – either physical or emotional – the partnership brings together child protection experts with policy-makers worldwide to convince them that the problem requires urgent attention and funding.

For over a year, specialists in children’s social welfare, labour, justice, health and education have gathered the best strategies to prevent violence against children. (Bissell says “social norm reform” – working from within communities to change attitudes toward practices such as child marriage – can be the most powerful.) Indonesia, Mexico, Sweden and Tanzania are taking the lead in implementing the strategies.

Bissell has been frustrated by the lack of financial investment in children’s safety throughout her career. “Violence

against children is always last on the list. It’s never had the same attention as child survival. But it’s not enough to save children so they can live in the rubble, a brothel or on the street.” From child trafficking and wartime atrocities to online bullying, the project will address all types of harm experienced by children in high- and low-income countries.

Bissell’s first foray into humanitarian work was in sixth grade, when she organized a fundraising walk around – and around – her three-room school in Whitby, Ontario, for an anti-poverty charity. At U of T, she helped launch Trinity’s Student Refugee Program. Before being appointed UNICEF’s global Chief of Child Protection in 2009, Bissell held UNICEF placements in Bangladesh and India. “Violence against children does not have to be a fact of life,” she says. “We all have the capacity to keep children safe.” – **MEGAN EASTON**

OVERHEARD



As counterterrorism moves from punishing acts of violence that have already been executed toward preventing terrorism that hasn't been committed yet – from crime to pre-crime – the state's attention shifts increasingly from examining what people have actually done toward scrutinizing who people are and what's in their heads and who they know.... Beards and 'traditional clothing' become omens of violent radicalization.





Garden Days is a Canada-wide event of gardening experiences – from a gnome hunt in B.C. to day-lily digging in Alberta – in June



From left: Geordie and Bill Konrad, and Hooman Bahador

The Konrad Group Helps Brands Boost their Digital Mojo

These U of T alumni help businesses from CBC to Coca-Cola thrive online

NEVER MIX FAMILY, FRIENDS AND BUSINESS – that’s the conventional wisdom. But Bill (BSc 2010 VIC) and Geordie Konrad (BASC 2010) and Hooman Bahador (BSc 2010 NEW) are proving the opposite is true: they say their deep connection has given them an entrepreneurial edge. “We know how to complement each other’s skill sets effectively,” Geordie says.

“It’s always been one of our strengths.... We are all best friends,” Bill adds.

It’s a secret weapon that has helped propel the success of the three business partners in the highly competitive digital technology sector. As founders of Konrad Group, they

help Fortune 1000 companies master digital technology – by developing digital strategies; designing and building websites and mobile and tablet apps; and assisting with branding, marketing and customer engagement.

The twin brothers began experimenting with computer programming at age 10. One year into their U of T degrees, they started their business with classmate Bahador. He runs their technology teams globally, and manages some of the firm’s largest client work. Just a couple of years out of university, they were able to reel in one of their first big-fish clients: the CBC. A recent project for the broadcaster involved helping its news division more effectively reach the now-majority of Canadians who access the Internet via smartphones and tablets. They created new iPhone and iPad apps that are extra mobile-friendly with more photos, video and audio, a cleaner layout and customized content. “It’s about building the future of news, which means offering personalization – apps that can learn users’ interests to provide more relevant content,” Bill says.

Over their nine years in business, the partners have also worked with major companies such as Nestlé, Coca-Cola and PayPal. They have five offices and almost 200 employees who include digital strategists, visual designers and software developers.

Recently, the founders acquired BrainStation, a digital education business with operations in Toronto, Vancouver and New York. BrainStation offers training in digital marketing, design and technology, as well as weekly workshops and events. “Every business and brand is being disrupted by digital technology,” says Bahador. “BrainStation is bringing education about digital topics to employees across all industries, so that they can react to this rapidly changing environment.” – **SHARON ASCHAIK**

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Nature and Nurture



Three strands – a garden, the loss of a parent and a writing class – twined together to grow *Unearthed* (Viking), a new memoir by Alexandra Risen, which comes out in August. The story follows how she discovered her parents’ painful past as war refugees at the same time as she was trying to tame her wild garden.

One class, part of the Creative Writing program at U of T’s School of Continuing Studies, was “Writing About Nature.” For that, says Risen, “I wrote a story comparing my mother to a lily of the valley” – the fragrant, tough flower that thrives in places other plants don’t.

Risen’s father had been silent and distant,

barely ever speaking. After his death, when Risen’s mother moved to a nursing home, Risen discovered documents that revealed some of the pain behind that silence – the certificates proving her parents’ Ukrainian citizenship, issued in 1941, and marriage papers from a displaced persons camp in post-war Germany. Simultaneously, she untangled her garden and her regrets for her parents’ emotional distance.

Risen finished her Creative Writing Certificate in 2014. “The program taught me what writing really meant and how hard one must work,” she says. “It was a very, very good experience.”

– **JANET ROWE**



Elvis Presley only performed five concerts outside the U.S. – and two were at Maple Leaf Gardens

MY DEFINING MOMENT AT U OF T

Kelly Anne Graham (BPHE 1987)

How a phys-ed wilderness survival challenge taught one athlete a lesson about resilience



“ONE SUMMER AT U OF T, I went with some classmates on a partial-credit canoeing and portaging trip in Algonquin Park. We were tested on our ability to survive in the wilderness, and it was my first time in such a situation. We had to plan our food, navigate with a compass and map, and set up shelters. It took a lot of discipline, collaboration and stamina.

I had always been a sports enthusiast, and the wilderness experience reinforced that I had the ability to endure as an athlete. The lesson stuck with me when I played competitive sports, and later when I took up CrossFit. Two years ago, at age 49, I placed 10th in the international CrossFit Games for women ages 44 to 49. Like the camping trip, it was a feat that required being comfortable with being uncomfortable.

I recently injured my cervical spine and had to take a break from CrossFit. This time, persevering in tough circumstances meant something different. I wrote *Hope RX'D*, which features stories from CrossFit athletes on overcoming obstacles such as depression, cancer and car accidents. The experience proved what I learned at U of T still applies: you have to make the best of whatever life hands you. I recently regained my world ranking and am heading back to the CrossFit Games in July.”

I Saw Him Standing There

In 1964, during the rising crest of Beatlemania, Robert Morris, a 22-year-old electrical engineering student at U of T, found himself on stage with the Beatles – shoulder to shoulder with Paul McCartney, wearing a blazer with the U of T crest, while flashbulbs ignited around him. But how the heck did he get there?

The Beatles played two shows at Toronto’s Maple Leaf Gardens that September. Morris was editor-in-chief of the U of T engineering newspaper, *Toike Oike*. “I decided to try to exploit my editorial position,” he admits. After pleading his case to the Maple Leaf Gardens’ publicity director, Morris was rewarded with a pass to both concerts – and to the press conference.

After the first show, the Fab Four held a Q&A with about 150 reporters in the arena. An informal photo-op followed. “John Lennon was standing at centre stage, approached by absolutely no one,” says Morris.

Morris pounced: he asked the musician to sign his copy of *In His Own Write* (Lennon’s first book). “Later,” replied Lennon.

“I moved a few feet away, and soon realized that there would be no ‘later,’” says Morris. “I retraced my steps and engaged him one-on-one in a long-forgotten five-minute conversation.”

The experience of seeing the megastars live is captured in Morris’s *Toike Oike* review: “The legendary voices and personalities were indeed merged into four living beings – these Beatles.”





FIRST PERSON

Arriving in a Place Where Almost No One Looks Like You

Certain immigrant experiences – such as the tales of those in rural communities – are overlooked in Canada, writes Sana Malik

LAST WINTER, I watched the first images of Syrian refugees arriving in Canada and was moved by boys and girls eagerly taking in the newness of Canadian society. What struck me, however, were the refugee families resettling in small towns and rural areas and the unseen challenges they will face in building a community. I also thought about how the children's experience of conflict, trauma and displacement will always be a defining feature of their Canadianness.

I have not had the same experience of forced migration, but since I moved to Cape Breton Island with my Pakistani family in 1993, I have thought a lot about variations in the Canadian immigration experience – and been particularly attuned to those who have immigrated to rural settings. Like those Syrian children moving to small communities, at seven years old I arrived in a new place where few people looked like me, leaving my known home continents away. I have had a luckier path – my parents, trained as psychiatrists in Pakistan and the U.K., *chose* to relocate to Canada for job stability and more accessible public education for their children. Still, I suspect my parents strongly felt the loss of their home and distance from their culture.

I remember my first months in Sydney, Nova Scotia, vividly. We were welcomed by a small community of immigrants who had made it their home since the 1980s. Bangladeshi, Indian, East African, West Indian and Lebanese families gathered their resources and helped us; it would be months until my parents would find work, and, with three children, setting up a new life would take time. We had donated furniture and toys, weekend potluck dinners with an array of cuisines, and religious classes in a makeshift basement mosque. The make-do mentality of that time remains with me: immigrants are incredibly resourceful and build with whatever they have at their disposal.

My time at school was less smooth. I often found myself the butt of mean jokes. My mother wanted me to carry my culture proudly, and when this translated into home-cooked school lunches or talent show performances, I was constantly mocked for how different I was. I lacked the tools to challenge how my background and appearance were judged.

In middle school, I competed in a public-speaking competition on how media portrayals of the “Third World” were limited. A classmate decided to speak on “The Oppression of All Women in Pakistan,” based on a single news story she had read. I felt invisible and personally misrepresented, which compelled a lifelong desire to challenge stereotypes and create more visibility for migrants and people from diverse backgrounds.

When I left Cape Breton in 2003 to study at U of T, I expected to “blend in” and to find a place where I did not have to explain myself. The reality was, it took a lot of time to build a community. Even my friends raised in big cities didn't quite get how migrant experiences can vary. I found meaning and purpose through community work that allowed me to engage with marginalized populations through U of T's International Health Program. This work also inspired me to think about achieving social change through arts and media. My encounters with newcomers helped me understand issues of class and segregation in urban centres. I grew frustrated that the version of multiculturalism presented of Canada in various sources overlooked specific histories and experiences – including my own in a rural setting.

I've always been driven to be part of projects that I wish had been there for me. I see the power that media and storytelling have, and so I am creating a platform online that is reserved for first-person experiences and views of migrants. I can only hope that this reaches an immigrant or refugee newly arriving in a remote Canadian community, giving them the power to know that their story is important and relevant.

Sana Malik is a journalist, global development consultant and founder of thisworldtown.com, launching in June. She earned a BA from Victoria College in 2008 in peace and conflict studies and diaspora and transnational studies.



Barry Avrich has also directed docs on writer Dominick Dunne, TIFF founder Dusty Cohl and Rolling Stones promoter Michael Cohl

60 SECONDS WITH

Barry Avrich

In his new memoir, the filmmaker and ad exec talks divas and Donny Osmond



IN THE SHOWBIZ WORLD, Barry Avrich (BA 1985 Woodsworth) is something of a double agent. On the one hand, he's a veteran ad exec who specializes in making clients look great. On the other, he's a successful filmmaker best known for his warts-and-all documentaries about some of Hollywood's biggest names. In his new memoir, *Moguls, Monsters and Madmen*, Avrich reveals who's naughty – and nice – in the celebrity world he knows so well. Here, he tells all to **Cynthia Macdonald**.

You promoted Garth Drabinsky's theatre productions, then later made a film about him he didn't want made. He was known as one of the scariest bosses in Canada (sample story from your memoir: Garth yelling "go faster!" at his private jet pilot.) This was the guy you wanted to get close to? I'd heard all the stories about his insatiable need for perfection. But when Garth became my client – as opposed to a boss, though he might

as well have been one – he took a liking to me in a paternal way. I was the subject of that volatile temper, but compared to others I pretty much got out unscathed. I knew how to pull a thorn out of a paw.

You've met lots of other fearsome celebrities along the way, including some divas. Maggie Smith haughtily compared her Toronto hotel room to *The Shining*; Lauren Bacall commanded you to eat hot dogs with her. Are these grandes dames a dying breed?

No. I don't think Lady Gaga or Beyoncé are any less diva-like in their demands. But I believe at the end of the day they've earned it. They're providing us with entertainment and escape, so they should be treated in a special way, and I'm fine with that.

You've chronicled the lives of movie moguls such as Lew Wasserman and Harvey Weinstein – but also Bob Guccione, the notorious publisher of *Penthouse*. Why him? Nobody gave Guccione credit for his journalism; his coverage of issues such as Vietnam veterans and homelessness was award-winning. I was interested in a tormented soul who wanted to be recognized as an artist, and went to his grave being known as a pornographer. There were many other magazines he owned that had nothing to do with pornography.

Not all celebrities you've met are friendly. You didn't exactly hit it off with Barry Manilow or Shirley MacLaine. But I'm happy to hear that Donny Osmond is neither monster nor madman. Oh, he's a complete sweetheart. He's so nice that when I approached him to be in the Garth Drabinsky documentary he said, "I can't do it, I've got nothing bad to say." I said, "Donny, you can say something good!" He is a wonderful guy.

Milestones

Elizabeth Shilton



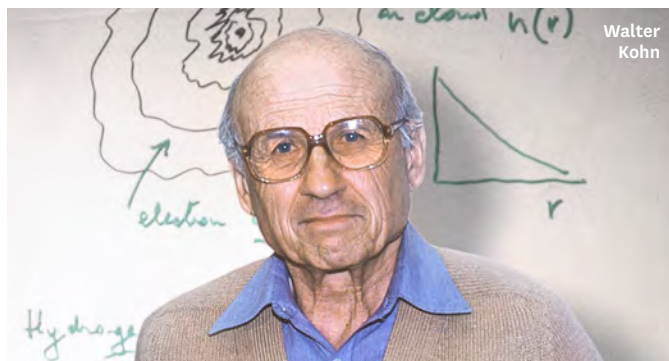
Elizabeth Shilton (BA 1971 VIC, MA 1972, JSD 2011) has argued before the Supreme Court to uphold the rape shield law; won a pay-equity ruling for low-paid women elementary teachers; and is working to improve the retirement income system for elderly women and the poor. For her law and justice work, Shilton received a YWCA Toronto 2016 Women of Distinction Award in May. She is now a senior fellow at Queen's University's Centre for Law in the Contemporary Workplace.

Since elementary school, engineering student **Sharon Ravindran** has been inspired by Nobel winner Marie Curie's work – and Ravindran has helped motivate others as co-president of U of T's "Nsight" mentorship program, where upper-year students lend a hand to those in first year. Ravindran is one of 217 graduating students to receive a Gordon Cressy Student Leadership Award, given out at Convocation Hall in April, for outstanding extracurricular contributions to U of T. Other recipients include **Oluwatomike Babajide**, a business major at UTM, who was project co-ordinator of the Erindale Campus African Student Association, a campus tour guide and a volunteer note-taker for students with accessibility issues. Computer-science student **Martin Petkov** ran events for commuter students through the Victoria College Off-Campus Association, was a mentor through Humanities for Humanity and also parried on Vic's fencing team. **Rupinder Bagha**, who majors in geography and city studies at UTSC, served on the executive of the Geography and City Studies Student Association and was a delegate at the Youthful Cities Global Summit in Toronto in 2015.

IN MEMORIAM

Walter Kohn

U of T alum rose above tragedy to earn a Nobel Prize in chemistry



WALTER KOHN'S LIFE AS A SCIENTIST was extraordinary. One of five Nobel laureates to have graduated from U of T, his work in chemistry and physics made a profound impact on both fields. But the life he led outside the lab was even more remarkable, as he rose above a youth marked by tragedy and dislocation.

Born into an Austrian-Jewish family in 1923, Kohn escaped to England via the Kindertransport rescue effort after Hitler annexed Austria in 1938. He later discovered that his parents had perished in Auschwitz. Nonetheless, his own status as a German national was to cause him hardship under Allied rule: he was ultimately exiled, travelling through what he called "U-boat infested waters" to an internment camp in Quebec.

There he met older internees, teachers who taught him to love math and science. Eventually, Kohn made his way to U of T and set about studying math and physics. His program required that he also study chemistry – but here, incredibly,

his German citizenship still proved a problem. As an "enemy alien," he was prevented from entering the chemistry building where, as he put it, "war work was in progress." Fortunately, mathematics dean Samuel Beatty made arrangements to waive Kohn's program requirement. After his third year, Kohn joined the Canadian army and, following one year of service, he was able to complete a "war-time" bachelor of arts in applied mathematics in 1945 (University College). He earned a master of science in math in 1946.

Kohn later settled in the United States, where he earned a PhD at Harvard, and held teaching positions in physics at Carnegie-Mellon University in Pittsburgh and University of California, San Diego. (He moved to the Santa Barbara campus in 1979.) During the 1960s – though he had not formally studied chemistry since high school in England – he was to help make a discovery that would earn him the 1998 Nobel Prize in that discipline.

Of that discovery, known as Density-Functional Theory, the Nobel academy said: "Walter Kohn showed that it is not necessary to consider the motion of each individual electron. It suffices to know the average number of electrons located at any one point in space." To this day, his insights assist scientists in the development of materials – from batteries to solar cells – in areas such as medicine and electronics.

Kohn was a man of many interests. He campaigned against the nuclear arms race, produced a documentary on solar power and established a program in Judaic Studies at the University of California, San Diego.

Yet through it all, he never forgot U of T. "On winning the Nobel Prize, Kohn acknowledged an enduring debt to this university, which had encouraged and inspired him at the most crucial juncture in his life," wrote fellow Nobel chemistry prize winner and U of T professor emeritus John Polanyi, in a recent email. "We remember him today with pride, as we shall in times to come." – **CYNTHIA MACDONALD**

IN MEMORIAM

Thora Gerow



At the age of eight, Thora ("Jerry") Gerow declared to her mother that she was going to be a nurse. She surpassed her own dreams: Gerow became one of the first nurse practitioners in Ontario, and, over her 55-year career, helped countless patients, mentored hundreds of nurses and helped found the Nurse Practitioners' Association of Ontario (NPAO) in 1973. "My life was nursing," she told Bloomberg Nursing's *Pulse Magazine* in 2015.

Gerow (DipPN 1947, DipPHN 1951) served as a Nursing Sister in the Royal Canadian Air Force during the Second World War. After earning two nursing diplomas at U of T, Gerow worked for a decade at the Hospital for Sick Children. She then returned to the university to prepare to be

a nurse practitioner (a role that requires additional education to an RN, and allows one to perform such duties as prescribing medication). Before long, advocating for nurse practitioners, and protecting and expanding their role within the health-care system, became Gerow's passion: she not only help found the NPAO, but served as its membership director for two decades.

Even after retiring, Gerow kept fighting on behalf of nurses: She advocated renaming the clinic in her retirement home from "medical centre" to "health service" – explaining that the former put the emphasis on doctors, but nurses did most of the work. She succeeded in getting the name changed.

Jim Gardner, Founder of Bruzer Apparel

Class of '93 University of Toronto Alumni

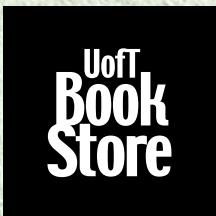
Varsity Blues linebacker and offensive lineman, Jim's entrepreneurial spirit materialized out of the desire to customize his teammates sweats, jackets and caps. As a natural problem solver and creative leader, Jim began sourcing Canadian textiles and seamstresses to make his vision a reality. Brüzer was born and today thoughtfully designs apparel for over 100 Canadian institutions and 138 NCAA and professional licenses.

Brüzer supports fair labour trade and environmentally friendly practices. Aligning with the core principles of the U of T Bookstore has made Brüzer a lifelong partner and contributor to University of Toronto branded apparel since '96.

Stay tuned for the Brüzer's new Back to School collection arriving to the U of T Bookstore in time for Fall 2016.

Pictured is Jim Gardner at the Varsity Stadium sporting the Bruzer Work Sock Crew - available exclusively at the U of T Bookstore.

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University of Toronto branded Brüzer apparel is available exclusively at

the U of T Bookstore and uoftbookstore.com

Alumni from the Class of 1966 celebrate their 50th anniversary reunion



Spring Reunion 2016

UNDER BLUE SKIES, thousands of alumni reconnected with old friends across all three campuses at Spring Reunion, May 25 to 29.

The weekend featured dozens of events for alumni young and old, including, for the first time, a kids' program for *future* grads (children of alumni from ages four to 12), complete with telescope demonstrations and practice digs at the Archaeology Centre.

While many of the events were primarily social, plenty of grads signed up for the Stress-Free Degree – attending talks on subjects ranging from art nouveau to nutrition and the future of computing.

Honoured alumni graduated in a year ending in a “1” or a “6”; special medal ceremonies were held for those marking their 55th to 75th anniversaries. Celebrating their 75th, from the Class of 1941, were Constance Upton, who earned her degree in occupational therapy, and Jack Carr, a graduate of engineering.

– **SCOTT ANDERSON**

All About Alumni

Clockwise from left: Going for a basket at the Goldring Centre; waiting outside Convocation Hall for the start of the Chancellor's Circle Medal Ceremony; making a fashion statement at the 50th anniversary reunion; all smiles at the LGBTQ Spring Soirée



continued >

All About Alumni

► Spring Reunion continued

Below and right:
Partying with the pandas
at SHAKER for Young Alumni,
at the Metro Toronto Zoo



Clockwise from above left: Checking out the architectural plans for the renewal of front campus; celebrating U of T pride at the LGBTQ Spring Soirée atop the Manulife Centre; peering through a telescope at Kids' Passport to U of T



Left and below: Sharing memories at the reception following the Chancellor's Circle Medal Ceremony, and blowing bubbles at the Alumni BBQ on front campus



THOMAS FEORE

Neuroscience and Philosophy student
Lead analyst for the G7 Research Group
at the Munk School
Cat enthusiast

“When I need long hours of focus, I study on the 1-below level of the Gerstein Science Information Centre. There’s a corner where the light is perfect—it keeps you awake without being intrusive.”

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BOUNDLESSKNOWLEDGE

In 1930, only about 20 per cent of U of T graduates were women



THIS SIDE OF PARADISE

June 6, 1930

U of T grads and guests enjoy a University College garden party

On a glorious sunny afternoon on June 6, 1930, new U of T graduates and their guests convened for a garden party in the University College quadrangle. While this photograph features women grads, their male counterparts outnumbered them by at least four to one. In contrast, about 15 per cent more women than men earn degrees at U of T today.

At this university-wide convocation, there were only a few female grads from the science and commerce programs; many earned degrees in social work, occupational therapy, history and languages. Another popular program was household economics, which offered an eclectic assortment of courses. In the morning, the students might discuss Shakespeare's revelations on human nature in English class, and then, after lunch, swing into a textiles lab to learn how to launder wool.

Earlier in this school year – on October 29, 1929 – the Wall Street stock market had crashed. Soon after, so did the dream of becoming a home-economics teacher. Schools often stopped hiring – even though they, and many employers, preferred hiring women because they would work for half the wages. Once a woman married, she'd likely quit (or be forced to quit) her job if her husband was employed. In the Great Depression it was considered unfair to have two breadwinners in one family.

But today was full of promise – and fun! In the evening, the new grads might attend a reception at Annesley Hall, be guests at the St. Hilda's College alumnae reunion dinner or venture over to a dance at Newman Hall to shimmy the night away.

– **SUSAN PEDWELL**

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that



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No purchase necessary. Contest open to Canadian residents who are the age of majority in their province or territory of residence as of the contest start date. Approximate value of each prize is \$1,000 Canadian. Chances of winning depend on the number of valid entries received by the contest deadline. Contest closes Thursday, December 8, 2016, at 11:59 p.m. ET. Only one entry per person accepted. Skill testing question required.

Spring Convocation

More than 13,500 U of T students converged on Convocation Hall this June, where they were officially welcomed into the university's alumni community. Joining the new grads as they celebrated this milestone were the 10 distinguished honorary graduands listed at right, each of whom delivered a convocation address.

Honorary Degree Recipients

Cynthia Barnhart

Chancellor of the Massachusetts Institute of Technology, she has overseen a significant expansion in student health and wellness programs

James Bartleman

A former lieutenant-governor of Ontario and an author, he served more than 35 years in the Canadian foreign service

Manjul Bhargava

A number theorist, he is the R. Brandon Fradd Professor of Mathematics at Princeton University and a winner of the Fields Medal

Piers Handling

He is director and CEO of the Toronto International Film Festival, the world's second largest film festival

M.G. Venkatesh Mannar

He is an international leader in global health and a pioneer in creating effective nutrition, technology and development initiatives for the world's most vulnerable citizens

Richard Pound

A former Olympic swimmer, he is a major contributor to the Olympic movement, having served on both the Canadian and International Olympic committees

Robert D. Putnam

The Peter and Isabel Malkin Professor of Public Policy at Harvard University, he has written extensively on religion in American life and the growing class gap among young Americans

David Schindler

The Killam Memorial Chair and a professor of ecology at the University of Alberta, he conducted research on lakes that led to the banning of phosphates in detergents

Linda Schuyler

BA 1974 Innis
A Gemini Award-winning television producer, she created the *Degrassi* series, one of the longest-running and successful franchises in TV history

Gerald Schwartz

He is chairman and CEO of Onex Corp., one of North America's oldest and largest private equity firms