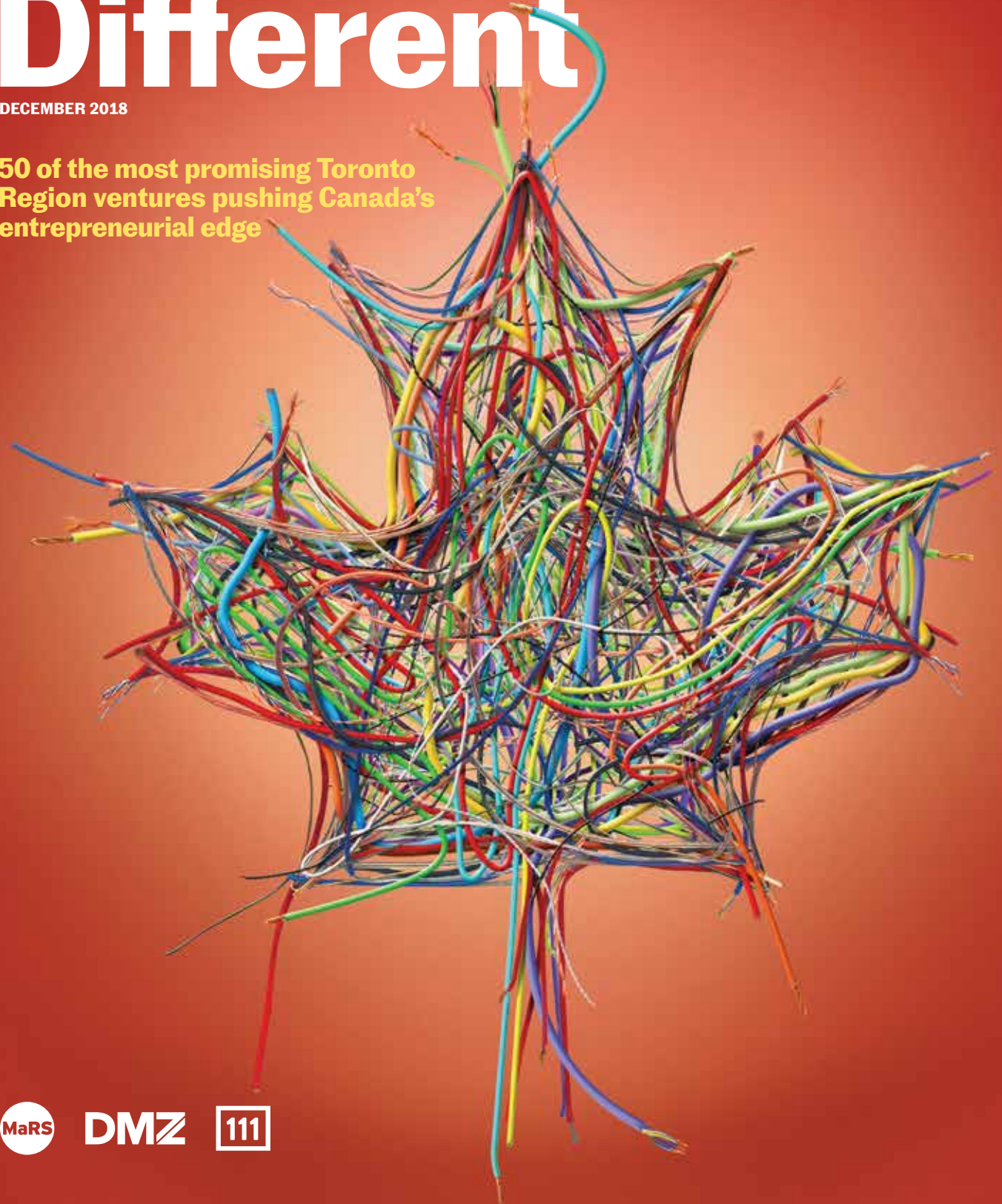


Why Toronto's time is now P.8 / Manufacturing that thinks for itself P.16 / New workers, better workplaces P.20
Great healthcare made greater P.27 / Accelerating AI's commercial impact P.28 / Fintechs find their place P.36

Wired Different

DECEMBER 2018

**50 of the most promising Toronto
Region ventures pushing Canada's
entrepreneurial edge**



DMZ

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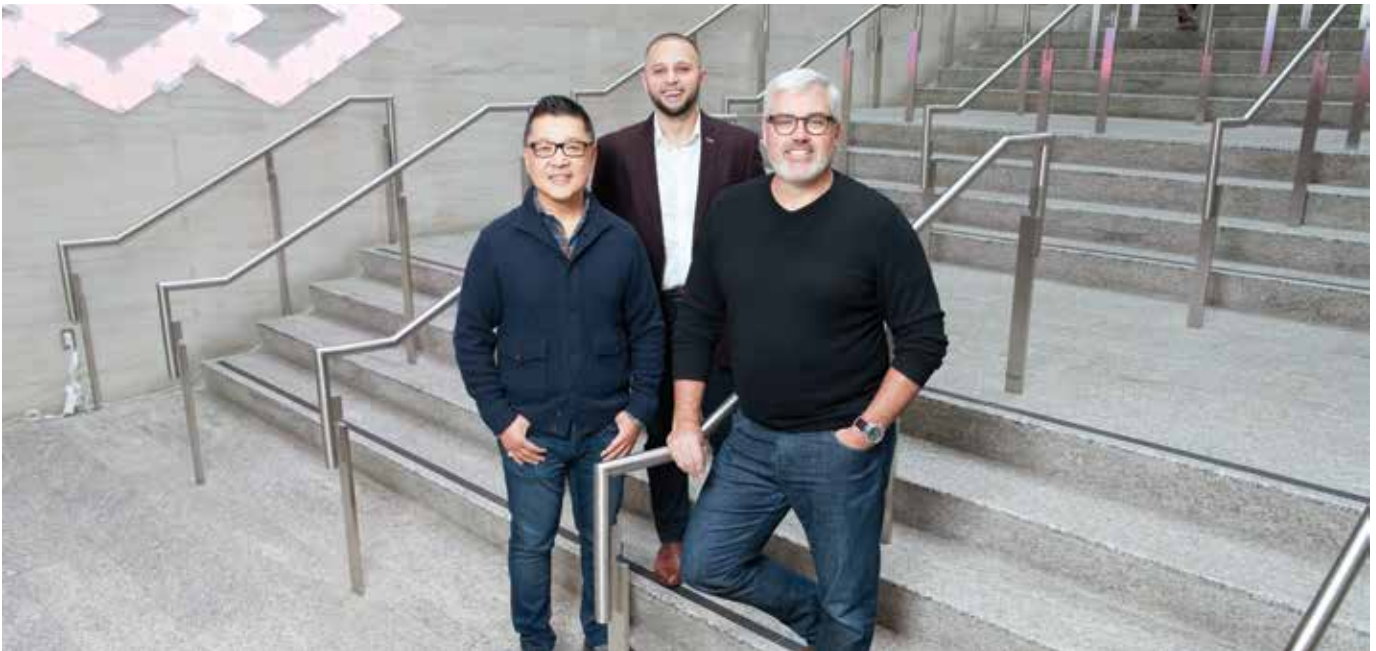


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(L-R) Yung Wu, CEO, MaRS Discovery District; Abdullah Snobar, Executive Director, the DMZ; and Dean Hopkins, Chief Growth Officer, OneEleven.

Wired different

Canadians are wired differently. We embrace difference differently. We assimilate differently. We approach change differently

By **YUNG WU, ABDULLAH SNOBAR and DEAN HOPKINS**

This difference gives us an edge in a world that is being rewired.

Artificial intelligence, blockchain and the sharing economy are changing human existence and reshaping society as we know it. While geo-economic centres are being rewired around these transformative innovations, geo-political narratives are becoming more turbulent, with the rise of nationalism and threats to free-market values.

As disconcerting as these developments are, they are giving Canada—in particular the Toronto Region—an advantage on the world stage. While others are turning inward, we have doubled down on our commitment to multiculturalism and diversity, creating fast-track visas for skilled tech workers.

It seems to be working. According to CBRE, Toronto is the fastest-growing tech market in North America. At a time when tech talent is a more valuable commodity than any natural resource, this region has built an enormous competitive advantage—attracting workers

from around the world looking to live in a vibrant community that embraces difference.

This growth tells a story that goes far beyond simple job metrics. Call it our diversity dividend: More than half our ventures have at least one foreign-born founder, and a larger proportion of our ventures are led by women than in Silicon Valley. This diversity is reflected in the faces of the entrepreneurs profiled throughout this magazine.

Multinationals are also being drawn here. In September alone, more than \$1.4 billion of investments in Toronto's tech sector were announced by companies including Microsoft, Uber and Shopify. That's just the tip of the iceberg.

How to explain this tectonic tech shift? We'd argue that it's due to our collaborative and inclusive culture. Toronto innovation hubs like MaRS, the DMZ and OneEleven are working together to provide a fertile environment for young companies to grow. Hubs like these and others in the surrounding region offer prime real estate where entrepreneurs, business

leaders and venture capitalists can co-locate, providing a natural networking platform that engages and empowers the community.

This magazine features more than 50 tech companies to watch in Toronto and the surrounding region. Many of these ventures are focused on socially beneficial verticals such as health, cleantech and technologies impacting the future of work and commerce.

Toronto's attraction—and unique value proposition—is its approach to responsible disruption. That means supporting companies that can make an impact globally. And we have no shortage of them. Take, for instance, Wealthsimple, which is helping customers make the most of their money with an easy-to-use, low-cost investment platform. Founded four years ago, it already has \$2 billion under management.

Spoonity has built a client engagement platform for restaurants and retailers that is rapidly gaining traction in South America, with almost 17 million transactions processed to date.

Meanwhile, companies like Opus One are bringing the era of clean energy closer. Its powerful software lets grid operators understand and manage the massive amounts of data needed to control a system powered by thousands of individual solar panels and wind turbines.

These and other ventures profiled in this magazine are just a small sample of Toronto's burgeoning tech sector. As our ecosystem grows, so its impact will grow, too. That is good news for our region, for Canada and for the world. ●

York Region: Where tech companies go to scale up

People, partnerships and quality of life make York Region the second-largest tech hub in the Toronto-Waterloo corridor

By **DAPHNE GORDON**

When General Motors chose a location for its new Canadian Technical Centre, it chose York Region's City of Markham because it's the "tech capital of Canada," according to Brian Tossan, director of the facility.

The 150,000-square-foot research and development centre officially opened in January and will employ 700 engineers and software developers when it reaches capacity, making it Canada's largest autotech hub.

York Region offers "opportunities to look for partnerships to further expand GM's ecosystem" because it's home to one of the largest tech clusters in North America, says Tossan.

Second only to Toronto as a Canadian tech centre, the region boasts 4,300 tech companies across its nine cities and towns, which include Markham, Vaughan, Richmond Hill and Newmarket. Many of those companies are industry leaders—both global names, as well as Canadian scale-ups.

Synergies between large and small

Synergies between large multinationals like GM and homegrown startups make York Region a great place for small businesses to grow into big ones, explains Melissa Chee, president and CEO of ventureLAB, a non-profit regional innovation hub.

"Some of our most successful companies grew and scaled because of early revenue from global customers," says Chee. "York Region has a wealth of global multinationals, including companies like Celestica, AMD, IBM, GM and GE. Companies like these partner with startups and scale-ups, who have emerging technologies, to meet customer demands more quickly."

Access to experienced talent

People are a major reason technology companies settle in York Region when they're looking to scale up and break into international markets. Local success stories include Real Matters, Redline Communications, Enghouse Systems, Mircom Technologies, Book4Time, Everlink and Dealer-FX, to name a few.

"There's good access to talent," says Wayne Gudbranson, CEO of Branham Group, a consultancy that creates an annual list of Canada's top 250 technology companies.

"(York) is more of a family community, it's not like downtown," he says, explaining that as workers become more established in their careers, they need space to build families.

With a population of 1.2 million, the area is one of Canada's fastest-growing regions, with 1.8 million people expected to live there by 2041, according to government projections.

An experienced talent pool has been essential for growth at Daisy Intelligence, located in York Region's City of Vaughan. The company uses artificial intelligence to analyze big data for its customers, helping them become more efficient and increase profits. Daisy started with two staff members and now has 50. More growth is expected in 2019.

"The most important thing for us is having access to talent," says founder Gary Saarenvirta.

Daisy's office is near Highway 407 as well as the Toronto-York Region subway extension to the emerging Vaughan Metropolitan Centre. That makes it accessible for recent grads, who tend to come from downtown Toronto, as well as 30-somethings, who live locally or drive in from other locations.

"Convenient access is why we chose the current location," says Saarenvirta. "It's a perfect hub spot for our salespeople, who travel quite a bit. We're 20 minutes from the airport."

Urban-suburban hybrid

Traditionally known as a suburban location with detached homes that appeal to families, York Region is becoming an urban-suburban hybrid, with a mixed housing market, walkable neighbourhoods and transit options that attract a diverse workforce.

Over the last four years, more than 20,000 new condo apartments were sold in York Region, according to BILD, an Ontario-based association of home builders. York is second only to the City of Toronto for new condo builds in the Greater Toronto Area.

These increasing urban housing options are attracting younger professionals and new Canadians, making it a rich source of talent for companies that know a diverse

workforce is a competitive advantage.

Innovative education

York Region's tech companies attract grads from universities and colleges across the Toronto-Waterloo corridor and beyond. But the region has special relationships with York University, Canada's third-largest university, and Seneca College, a school of applied arts and technology with several campuses in the area.

York University links students with local tech companies for experiential learning opportunities, and partners with businesses for joint research projects. It also consults with area stakeholders to create programs.

"It's about identifying what skills the industry needs," says Sarah Howe, director of Innovation York, the university's industry liaison office. "We're training students early and giving them opportunities for experience." ●



General Motors opened its new Canadian auto-tech innovation hub in Markham, York Region. It is expected to employ up to 700 engineers and software developers.

Destination T.O.: An unprecedented influx of top-tier international talent and capital—drawn by a critical mass of homegrown expertise—has vaulted the city and its surroundings into the upper echelon of global tech capitals

By Karen Mazurkewich

08

Wired different:

Canadians are wired differently. We embrace difference differently. We assimilate differently. We approach change differently

By Yung Wu, Abdullah Snobar and Dean Hopkins

03



New work order:

Upheavals in technology, the economy and society are creating big opportunities for developers of innovative tools for hiring and managing talent

By Jim Middlemiss

20



AI's next breakthrough:

Already a global centre for artificial intelligence research, southern Ontario—Canada's largest AI hub—is now leading an all-out push to accelerate the technology's commercial impact

By Jason Kirby

28



Know your frenemies:

Fintech startups are finding they have more to gain by complementing, rather than competing with, the big banks

By Roy Kao

36



Contents

- 8 Destination T.O.**
Zoom AI *By Karen Mazurkewich*
- 12 Unlocking the value in video**
Vidyad *By Anthony Reinhart*
Data for dealmakers
Hockeystick.co Inc. *By Jason Kirby*
- 13 The supply chain's missing link**
Nulogy Corp., tealbook Inc. *By Jim Middlemiss*
Shorter circuits
Voltera *By Craig Daniels*
- 14 Robots on a roll**
Clearpath Robotics *By Naomi Buck*
(Non) human resources
Humi *By Yan Zhou*
A taste of the future
Spoonity *By Corey Black*
- 15 Delving into data**
Daisy Intelligence *By Barry Chong*
Built-in solutions to concrete problems
Bridgit Solutions *By Kerry Banks*
Taking the risk out of insurance
Zensurance *By Veronica Sheppard*
- 16 Operation: Efficiency**
Canvass Analytics *By Kara Collins*
- 18 Rebooting operating systems**
Synaptive Medical Inc., Profound Medical Corp.
By John Greenwood
- 19 The paper shredders**
Plooto, Sensibill, Jobber *By David Paterson*
Game play for serious learners
Prodigy *By Veronica Sheppard*
- 20 New work order**
Hyr Inc., TimeSaved, Procertas, Skrumble, Planbox, Fortay
By Jim Middlemiss
- 24 Global influence**
#paid, Brizi *By Barry Chong*
Selling hospitals on new technologies
ACTO *By Jordan Adams*
- 25 Onsite insights**
inField Solutions *By Barry Chong*
Virtual grammar police
Scribendi *By Lara Torvi*
Filling in forms can be fun. Really.
FormHero *By Jordan Adams*
- 26 Doctors on demand**
Maple *By Celia Milne*
- 28 AI's next breakthrough**
Chisel, BenchSci, Rubikloud Technologies, Knockri
By Jason Kirby
- 32 Bye-bye boxed-in workers**
SoapBox, Forma AI *By Jason Kirby*
Matching number-crunchers
Luminari *By Bryan Borzykowski*
- 33 Power to the purchasers**
Ritual, Flexiti, TruRating *By Jason Kirby*
Stopping epidemics dead in their tracks
Advanced Theranostics *By Barry Chong*
- 34 No random sample**
Sampler *By Matt Gurney*
- 36 Know your frenemies**
Thinking Capital, Wealthsimple, KOHO *By Roy Kao*
- 40 Digital hands make brighter work**
Zoom.ai, Axonify, Nudge.ai *By John Lorinc*
- 41 Technology changes the conversation**
emojiHEALTH, conversationHEALTH, InteraXon *By Mai Nguyen*
Better credit
Borrowell *By Bryan Borzykowski*
- 42 Unmistaken identity**
BioConnect *By Tim Falconer*
- 44 Savvy software for the smart grid**
Opus One Solutions *By Naomi Buck*
- 45 Enabling AI at the edge**
Invision AI *By Jonathan Woods*
A big-data power play
Stathletes *By Tim Falconer*
- 46 Medical tech with a human touch**
ForaHealthyMe Inc., Verto Inc. *By Gerry Flahive*
Carbon-neutral coal? It's real
Char Technologies Ltd. *By Bryan Borzykowski*

Wired Different

50 of the most promising Toronto Region ventures pushing Canada's entrepreneurial edge

This magazine was generously supported by members of the MaRS ecosystem that are making Toronto a global hub for innovation.

Our title sponsors, the DMZ and OneEleven, work together with MaRS and many other hubs in the surrounding region to support the startups that will have the biggest global impact.

We would also like to thank Toronto Global and the City of Toronto, which have supported MaRS in its efforts to promote our region's innovators globally. And special thanks to the Government of Ontario, a long-time supporter of the Toronto Region's innovation ecosystem.

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Innovate inclusively. Compete fiercely.

MaRS is fuelling the engine of Canadian economic growth and job creation

By **DAVID PATERSON**

Building a successful company is an ambitious goal. But at MaRS, we aim higher still.

We support the disruptors, innovators and visionaries who have bold solutions to the toughest problems. MaRS is more than North America's largest urban innovation hub. We are a leader in innovating with impact.

We focus on four specific sectors—cleantech, health, fintech and enterprise software—where the potential is greatest to build global companies that can generate substantial profits, create thousands of jobs and help solve major challenges.

Solving global challenges

The companies we support are building reliable, affordable energy storage systems and smart grids, breaking the last major barriers to electricity systems that run entirely on renewable power. They're using the vast data-crunching power of algorithms to digitally unravel the human genome and accelerate drug discovery. They're using artificial intelligence to make the hiring process fairer for all. And they're redefining business models, creating companies that build social and environmental responsibility into everything they do.

MaRS supports these ventures with a unique innovation model that combines Canadian values and an ambitious global vision. We innovate inclusively, but we compete fiercely.

Creative collisions

The 1,200 Canadian companies that MaRS supports benefit from more than the expert advisory and services provided by our ventures teams. They are part of an innovation community like no other. MaRS is one of the few places on earth where cancer scientists rub shoulders with artificial intelligence researchers, where venture capitalists might sit next to the startups they fund, and some of Canada's biggest financial institutions and global corporations are just down the hall.

More than a launchpad for startups,

MaRS is a bridge between Canada's leading ventures and global innovators, with 1.5 million square feet of cutting-edge lab space and offices where startups and multinational companies work side-by-side. Our carefully curated mix of corporate partners and tenants includes Facebook, PayPal, Microsoft and Autodesk.

MaRS is a leading centre for artificial intelligence, housing the Vector Institute as well as facilities for Uber's self-driving car division, a research lab for Samsung, RBC's Borealis AI and Element AI, a Canadian venture. And our building is also a focus for medical research. The McEwan Centre, BlueRock Therapeutics, CCRM and XOR Labs are applying breakthroughs around stem cells to advance regenerative medicine. Alongside these, MaRS also houses the only JLABS outside the U.S., an incubator where startups can leverage the expertise and resources of healthcare giant Johnson & Johnson.

This carefully curated, collaborative environment has been created at MaRS with one overarching goal: growing Canadian ventures into global powerhouse companies.

Turning startups into scaleups

Operating at scale, with a network of international partners, MaRS is able to connect made-in-Canada ventures to all the components they need to go global. As North America's largest innovation hub, we are a gateway for talented workers and venture capital investors looking to enter the Canadian market. We can provide soft landings for Canadian companies entering foreign markets and help with building their international profile through marketing and public relations support.

The results speak for themselves. Last year, MaRS-supported ventures generated \$1.3 billion in revenues and employed more than 12,800 people in towns and cities across Canada.

As Toronto's tech star rises, MaRS is well positioned to leverage this momentum. World events have aligned to give Toronto a window of opportunity to leap forward as others stumble and to build a tech

ecosystem that can be the engine of Canadian economic growth and job creation.

Expanding the MaRS footprint

MaRS is seizing the moment with a recently announced expansion to a new innovation centre on Toronto's waterfront, our first permanent outpost beyond our existing building. In Toronto's tight real estate market, this new hub will provide much-needed affordable office space for ventures.

We aim to extend MaRS' collaborative model to this new waterfront hub, co-locating startups with corporate partners in a diverse and vibrant innovation community. Ultimately, this will help us support more Canadian companies that will make an impact on the world stage. ●





Destination T.O.

An unprecedented influx of top-tier international talent and capital—drawn by a critical mass of home-grown expertise—has vaulted the city and its surroundings into the upper echelon of global tech capitals

By **KAREN MAZURKEWICH**



~\$1B

Amount of U.S.
investment in Toronto
in September 2018.

40%

Number of Canada's
head offices based in
Toronto Region.

18.5%

Amount of Canada's
GDP generated in Toronto
Region.

28,900

Number of tech jobs
created in 2017 in Toronto
(more than the Bay Area,
Seattle and Washington
D.C. combined).

CBRE GROUP, JULY 2018

100,000

Number of new residents
drawn to Toronto
Region annually.

Roy Pereira, a serial entrepreneur building a new AI venture, was intrigued by an unusual recruiting pattern he witnessed in Toronto last year. Instead of sifting through a pile of local graduates, the founder of **Zoom.ai**, a chat-based employee productivity tool, found himself reviewing dozens of resumes from U.S.-based applicants. What started as a trickle of inquiries from global tech talent following the H-1B visa changes in the U.S., has turned into a tsunami of international interest in the region.

"In the last year alone, we've seen an unprecedented number of qualified applicants applying from overseas and the U.S. I see this influx not only due to our higher education institutions and thriving startup scene, but also because we welcome diverse talent," says Pereira.

That influx of people is being matched by a new flow of international capital. In September alone, U.S. firms announced investments of nearly \$1 billion in the Toronto Region to build out global operations and research capabilities. One of the blue-chip names on the list was ride-hailing giant Uber. During the announcement in Toronto, CEO Dara Khosrowshahi spoke about his vision for the future of urban mobility: "We really want Uber to be the one-stop shop for mobility in any city."

But while the company's ambitions obviously are not focused on a single locale, there was a reason it chose to invest \$200 million to locate its facility in Toronto: talent.

The Toronto Region has long been an international hunting ground for graduates as the area's post-secondary institutions turn out a steady supply of engineers, software developers and data scientists. What's changed is that U.S. corporations are no longer just siphoning talent out of the country to work in Silicon Valley, New York or Seattle, but instead increasingly looking to co-locate their research labs with Canada's centres of excellence to work alongside these experts.

In selecting the location for its new research hub, Uber tapped the co-founder of the Toronto artificial intelligence accelerator, the Vector Institute, to head its operation known as the Advanced Technologies Group. As Toronto Region Board of Trade (TRBOT) CEO Jan de Silva puts it, Raquel Urtasun, a former University of Toronto machine vision researcher, is seen as being "on the tip of the point" when it comes to one of the key technologies required in autonomous vehicles. The decision to expand here is all about her, she adds.

In fact, AI is becoming one of the city's core capabilities—with multinationals such as Autodesk, Microsoft, General Motors and Samsung setting up AI research labs in the city. Other bets on Toronto include Sidewalk Labs, the smart city arm of Google parent Alphabet Inc., which is pioneering its urban technologies on the city's waterfront as part of a larger development called Quay-side. Pull back the view a little further, and these arrivals represent the latest, strongest pulse in a growth story that has been building over the past decade, a period in which the city has emerged as a fast-growing economic powerhouse in tech, manufacturing, banking, mining, finance and food processing. It's a growth story built around homegrown innovation both fueling and fed by the influx of international players.

This corporate nearshoring trend explains why de Silva and others feel that the Toronto Region is having what she calls "a moment," despite ongoing uncertainty—before and after the announcement of the United States-Mexico-Canada Agreement (USMCA)—about trade relations with the U.S. It's also a "moment" that, when seen in the context of the shifting tides of international investment, has arguably put Toronto at the vanguard of "the rest"—second-tier global cities challenging the world's financial and technology capitals for a consistently larger share of future economic opportunity.

Toronto and the surrounding region—which extends from Waterloo to Oshawa and Hamilton—is home to about 6.4 million people, half of whom were born outside Canada. It houses almost 40 per cent of all Canadian head offices and generates fully 18.5 per cent of the country's GDP. It consistently ranks near the top of global livability rankings. And its momentum is palpable.

In 2016, Ontario saw an almost 50 per cent bump in venture capital deals. The province now ranks fourth in North America in terms of the dollar value of VC



financings, after California, New York and Massachusetts. Not coincidentally, the Toronto-Waterloo corridor has also become home to a very active network of incubators and accelerators, including MaRS Discovery District, OneEleven, the DMZ, Communitech and the Creative Destruction Lab at the University of Toronto's Rotman School of Management, that are together attracting angel investors and founders. Other organizations like Toronto Finance International are working on initiatives to improve the regulatory environment and help fintech startups grow.

Toby Lennox, president and CEO of Toronto Global, the region's economic development agency, adds that he's seeing a rapidly growing number of firms choosing to locate in the area as a means of solving complex human resource recruitment and retention challenges. In 2017, Toronto was the fastest-growing market for tech jobs, according to CBRE Group's annual survey, with 28,900 jobs created—more than the San Francisco Bay Area, Seattle and Washington, D.C. combined. In addition, tech employers accounted for more than a third of demand for the city's office space.

"There's a stampede toward talent," says Lennox, pointing out that the region as a whole can offer solutions to the full range of recruitment needs facing firms of all sizes.

But this corporate migration also follows the trend noted at the outset: the reverse brain drain from the U.S. to Canada first identified by Pereira and confirmed in a research project conducted by MaRS. The survey, which polled over 100 startups in the ecosystem, showed a significant spike in international applications from highly skilled professionals and graduate students over the past two years.

The spike coincides with the rising anti-immigrant sentiment in the U.S., plus the imposition of tough work visa restrictions during the Trump administration. It



“
The world's
geo-economic map
is being redrawn...
and the capital
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economy will be
the global centres
of innovation.

Yung Wu,
CEO, MaRS



also parallels initiatives such as the fast-track visa for tech talent created by Canada's federal government.

"The world's geo-economic map is being redrawn around us...and the capital cities of this new economy will be the global centres of innovation," says Yung Wu, CEO of MaRS. "All this is happening at the same time as politics have become more turbulent."

Where once governments looked to build bridges to the world, now they are building walls. This trend gives Canada, which is doubling down on its commitment to multiculturalism and diversity, an edge on the world stage. In Toronto's case, the recent wave of tech applicants represents a growing slice of the giant population influx to the region—about 100,000 new residents annually. And, as Yung Wu notes, these newcomers inject an enormous amount of entrepreneurial energy into the region's economy and its labour force. "Immigrants don't come here with much and they must do whatever they can to overcome challenges. That's the essence of what it is to be an entrepreneur."

But despite the metrics, Canada is not a nation comfortable trumpeting its success. After wrapping his fireside chat with Al Gore in Toronto in October, Eric Schmidt, former executive chairman of Google and Alphabet Inc., remarked to a handful of tech executives that he was surprised at how all the speakers preceding him on stage talked not about the region's greatness but its need to continue to build on its momentum. This struck him as defensive. "Toronto has already arrived," he told a group backstage, referring to the massive projects in the works. "Remember," he said, referring to the Sidewalk Labs project, "we chose you." ●

—With files from John Lorinc

► Zoom.ai, zoom.ai

Growing Toronto's fintech ecosystem

How Toronto Finance International is helping the city become a global hub for excellence

By **DAPHNE GORDON**

Technology is driving profound change in every area of society and business, and the financial sector is experiencing a seismic shift.

Innovative financial technology startups (fintechs) are emerging in Toronto, striving to establish themselves in an industry traditionally characterized by large institutions.

Meanwhile, established financial companies are using new technologies to find more effective ways of doing business, and more efficient ways of delivering service.

Both large and small players are focused on meeting consumer demands for more convenient access to a wider range of financial services—without sacrificing security or privacy.

Amidst the disruption, Toronto is poised to become a global fintech leader, thanks to excellence in five key areas:

- a strong core of financial institutions
- top-tier research facilities at local academic institutions
- a large and skilled talent base
- low operating costs compared to other fintech hubs
- global leadership in AI, blockchain and cybersecurity

Today, approximately 140 fintech companies are located in the Toronto Region, and many success stories have helped the region thrive.

But to compete in a shifting global economy, stakeholders must work collectively. Other major cities around the world are building fintech sectors. They're developing public-private strategies, attracting foreign investment, adopting regulations that enable innovation, and growing their talent pools. Toronto must do the same.

That's where Toronto Finance International comes in. A public-private partnership between government, the financial services sector and academia, TFI's mission is to enhance the region's competitiveness as an international financial centre. It provides thought leadership and promotes Toronto on a global stage.

Helping develop the fintech ecosystem is a key part of TFI's action plan.

Emphasizing innovation

"Toronto is perceived internationally as a stable financial centre," says Jennifer Reynolds, president and CEO of TFI. To bolster its position in the global marketplace, Toronto must also become known as a leader in fintech innovation.

"The financial industry is changing at a faster pace than many other industries," says Reynolds. "The strength of the sector is a key driver of the Canadian economy. To remain competitive and drive growth, we need an environment that fosters innovation."

Adapting to new business models

In their current state, finance regulations can be confusing, onerous, and expensive for fintech employees to comply with. They may even discourage innovation in the financial sector and foreign investment in fintech.

TFI is working on several initiatives to encourage evolution in the regulatory environment and to help fintechs navigate the existing regime. "Other countries are moving ahead with national strategies to drive innovation in the financial sector, and Canada needs to do the same," says Reynolds.

Growing the pipeline of talent

Toronto boasts strong tech talent, but more is needed to fill the demand from the financial sector. To ensure students have the right skills and experience, TFI works with universities, colleges and financial institutions, helping to expand the pool of "work-ready" university graduates.

For example, in a report earlier this year, TFI identified a gap in the talent pool for people with cybersecurity skills, which are integral to the sector's success. TFI brought financial industry and academic leaders together to make a plan to develop a talent pool with the skills needed now.

"Schools are already moving quickly to design programs and certificates around the evolving needs of cybersecurity," says Reynolds. "Some are looking to introduce

them within the next 12 months."

Engaging young people

TFI has plans to reach out to high school students in Toronto later this year with a program called Uncovering Opportunities: High School Edition. High school students will attend day-long interactive sessions at several Bay Street financial institutions, hosted by TFI.

Students will learn about innovation in the sector and get a glimpse of how they can play a role in an industry that touches people's everyday lives, says Reynolds.

"Jobs in the financial sector have changed," explains Reynolds. "Every part of a financial institution is impacted by technology. As a result, recruiting needs are much more diverse than they were in the past."

Meeting the needs of Canadians

"Innovation in the fintech sector is good for everyone," says Reynolds.

"Canadians will have access to the best financial services out there. That impacts their lives. It impacts how they finance their personal activities and their businesses. And it's critical to the functioning of all other parts of the economy." ●

Jennifer Reynolds
President and CEO, TFI





Unlocking the value in video

By ANTHONY REINHART

There are billions of reasons why **Vidyard** is aiming to become Canada's next billion-dollar tech company.

The fast-growing online video marketing industry reached an estimated US\$135 billion in value in the U.S. in 2017, coming within striking distance of the combined US\$154 billion spent on digital and television ads, according to *Forbes*.

With online video eating up an ever-larger share of corporate marketing budgets, Vidyard—whose video analytics software helps companies understand their clients and drive sales—holds a prime seat at the feast.

Launched in 2011 by University of Waterloo classmates Michael Litt and Devon Galloway, Vidyard earned a coveted place at California's Y Combinator accelerator that year. They graduated with \$1.65 million in seed investment from a group of Silicon Valley veterans, including YouTube co-founder Jawed Karim.

But, instead of staying in the Valley, Litt and Galloway returned to the Communitech Hub in Waterloo Region to start building their company—a bold decision that inspired a string of

young entrepreneurs to follow suit and energized the region's startup scene.

Vidyard went on to raise more than \$60 million in venture capital, including an \$18-million round in 2015 from Salesforce Ventures and Bessemer Venture Partners, the Silicon Valley sages who backed LinkedIn, Pinterest and Shopify.

Litt says Bessemer made the deal despite being unfamiliar with the Waterloo Region tech scene, thanks to Litt's assessment of the potential to grow Vidyard into a billion-dollar company in its hometown.

"Waterloo is great for so many reasons, but the common denominator comes down to the University of Waterloo," says Litt, whose company employs about 230 in its downtown Kitchener office. "If you look at the new companies created here in the last 30 years, you'll see that many of them started as undergraduate research projects at UW. Not all of these projects succeed, which creates a broad talent pool to feed the companies that do." ●

► **Vidyard**, vidyard.com



Data for dealmakers

In his years as an angel investor and VC, Raymond Luk was always struck by the disconnect between the vast sums of money being injected into high-risk companies and the lack of information about them. "A person buying a share of a public company has all this juicy information," he says. "But if you're writing a \$100,000 cheque to a startup, it's just handshakes and Excel sheets."

That frustration led Luk to launch Toronto-based **Hockeystick.co Inc.** Named after the growth curve every entrepreneur aims to achieve, it offers a secure data platform for startups to share key financial information securely with their investors.

To date, Hockeystick's database includes 16,000 companies, 250 VCs, scores of angel groups and hundreds of government programs. There's a public-facing, open-source version on its website, but companies and investors also have protected access to financial reporting tools, and customizable dashboards and charts to track performance metrics.

Hockeystick is now the official data platform of the Canadian Venture Capital & Private Equity Association. And last year, it also partnered with the Lazaridis Institute in Waterloo, Ont., to develop a national scale-up data platform to help VCs, angel groups and government agencies make investment decisions. "Nobody really knows what makes the difference between a successful scale-up and a company that will be globally competitive," says Kim Morouney, the Institute's managing director, "so we need to collect data and see what combination of revenues, growth, investment and talent looks like the best bet."

Hockeystick has also signed a deal with the Angel Capital Association in the U.S., which was drawn in particular to the platform's privacy safeguards. "We wanted to put together the biggest database of angel group investments across North America so we could figure out what are the factors that really impact investor success," says Marianne Hudson, ACA's executive director. "Hockeystick is the first platform that does keep data private." BY JASON KIRBY

► **Hockeystick.co Inc.**, hockeystick.co

The supply chain's missing link

By JIM MIDDLEMISS

If you ask Jason Tham, CEO of **Nulogy Corp.**, a specialist in digitizing and automating supply chains, what makes his company's work important, the answer is a no-brainer.

The supply chain "is the backbone of trade," Tham says. "Without trade you wouldn't have commerce and without commerce, you wouldn't have an economy."

A September 2018 survey by consulting firm Dun & Bradstreet found that 65 per cent of financial executives agree, citing supply chain failure as either a high or moderate risk for their organizations. The flip side of that risk is opportunity. Treating a supply chain as a strategic asset not only makes it more resilient, but it can help companies make their products better and get them to market faster.

Yet a lack of data and understanding still leaves many companies stumbling on both fronts. That same Dun & Bradstreet survey, for example, found that 60 per cent of executives manage supply chain data in a "silo," relying on self-created analytics and credit reports.

This is where Nulogy and **tealbook Inc.**, another Toronto-area supply chain management contender, come in. Their platforms

use machine learning and other tools to help companies expand their understanding of their supply chain's potential while guarding against disruptions caused by labour disputes, extreme weather or business failure.

Stephany Lapierre, tealbook's founder and CEO, says her company combines technology with procurement expertise to help its clients create broader, more interconnected supplier networks. She tells the story of one client that recently used tealbook to expand its supplier network and meet diversity requirements in various sourcing contracts. The company thought tealbook might unearth 100 vendors, but instead, it found 1,600 potential suppliers, a "massive increase" over their existing supply chain. "We're uncovering innovative ways of finding value for customers," says Lapierre.

Tham, likewise, cites the example of one consumer goods client that saved almost \$100,000 per SKU using Nulogy's platform. "Digitization of the supply chain brings efficiencies," he says. ●

► **Nulogy Corp.**, nulogy.com

► **tealbook Inc.**, tealbook.com



Stephany Lapierre
CEO, tealbook Inc.



Shorter circuits

Necessity is often the mother of invention. The founders of **Voltera** were so fed up with the weeks-long wait and hassle associated with getting a custom circuit board printed, they invented a way to do it on a desktop in minutes.

Today Kitchener-based Voltera is among the firms on the Canadian Business Startup 50 list of Canada's top new ventures. The company, founded in 2013 by four University of Waterloo mechatronics and nanotechnology engineering students—Alroy Almeida, Katarina Ilić, James Pickard and Jesus Zozaya—has grown to 16 employees and offers a suite of desktop products that helps academics, researchers, entrepreneurs and hobbyists make prototype circuit boards.

In 2015, the company's flagship product, the V-One circuit board printer, won the \$45,000 James Dyson Award, an international student design competition, and the \$50,000 TechCrunch Hardware Battlefield competition. The V-One uses paste extrusion technology to dispense silver nanoparticle conductive ink and can also dispense solder paste, fundamentally simplifying the process of creating circuit boards.

"[The V-One] eliminates the frustrations all hardware developers have faced with traditional fabrication processes and can cut development time from months to days," Almeida, the company's CEO, told *TechCrunch*.

The company remains headquartered in Kitchener because of its unique support system. "Kitchener-Waterloo is a microcosm of the Canadian mentality that success for one of us is success for all," said Almeida. "Its tech sector and culture as a whole have been flourishing over the last few years. That being said, it has many years of growth ahead and we want Voltera to be part of that story." BY CRAIG DANIELS

► **Voltera**, voltera.io

Robots on a roll

By NAOMI BUCK

While studying engineering at the University of Waterloo, four friends tinkered in a basement with what would ultimately become a self-driving vehicle. With that success, an idea—and a company—were born. Nine years later, **Clearpath Robotics Inc.** is a leading maker of research robots and unmanned vehicles for industrial applications.

With the International Federation of Robotics projecting that global robotic shipments will reach \$68 billion by 2025, there's no question it's a rapidly growing field, and Clearpath has developed specializations in two particularly high-growth areas.

First off, the company began creating research robots for academic and R&D purposes: rugged, customizable, generic base platforms that can be used to test software and algorithms. When combined with third-party components, they can also be used in mining, surveying, mapping and industrial automation. Clearpath's research robots are now found in labs in 40 countries.

In 2016, the company launched a division for self-driving vehicles, creating purpose-built platforms used in factories, warehouses, logistics centres and transportation hubs. Their distinguishing feature is their flexibility;

they require no beacons, tracks or barcodes. Christopher Bogdon, Clearpath's marketing specialist, sees no limit to this market: "Factory automation that boosts productivity and requires no fixed infrastructure is just huge."

William Melek says Clearpath's founders have "the right formula figured out." As director of mechatronics at the University of Waterloo, he knew them as students: "They have a true understanding of the marketplace, technical expertise, very competent management" and a reputation for quality "that speaks for itself." ●

► **Clearpath Robotics**, clearpathrobotics.com



(Non) human resources

The road to recruiting is littered with HR software programs. There are programs for attracting and managing resumes, others for onboarding and programming, and still more to track days off and goal-setting.

Kevin Kliman, a Toronto-based dentist who briefly ran his own practice, saw a gap in the marketplace for small businesses looking for a single HR platform that could serve multiple functions, automating routine tasks usually handled by staffing and resource personnel. By automating these tasks, he reasoned, employers could actually focus on more critical issues such as support and training. So, he created **Humi**.

Kliman is building Humi by first serving other startups such as inkbox and TribalScale. Bootstrapping the company in Canada, he chose to grow his firm in Toronto, partly because of the support of friends and family, but also because of the collaboration within the Toronto ecosystem: "In San Francisco, the barriers to entry into the market and finding the right (talent) are higher. Whereas in Toronto," he adds, "there are more opportunities." BY YAN ZHOU

► **Humi**, humi.ca

A taste of the future

By COREY BLACK

Watching the Spanish-speaking staff of a Guatemalan coffee shop use the app he built is a moment Max Bailey won't forget. Although he didn't fully understand their feedback, he saw clearly that it was working and that his product was having an impact. This was the rewarding moment he could only envision when he launched **Spoonity** five years ago with co-founder Myron Gomes.

Spoonity is a powerful app that bundles multiple services aimed at helping retailers and restaurants grow their businesses—everything from loyalty programs and mobile ordering to payments and digital marketing solutions. And customers are eating it up. Today, Spoonity does business in 10 countries and three languages, facilitating 75,000 transactions a day—a new milestone for the company.

Bailey, a serial entrepreneur since high school, flies south a lot these days, pushing his product into new markets. "China's transformation from a cash-based society to a digital one was swift," he says. "We believe that Latin America is similarly poised for this massive shift, and we're trying to position ourselves with some of their biggest merchants."

It's clear that Spoonity's current success is just a taste of what's in store for this fast-growing company. ●

► **Spoonity**, spoonity.com



Delving into data

Gary Saarenvirta is no wallflower. The founder and CEO of **Daisy Intelligence** has a clear goal for his startup: become a global company.

"We're constantly looking for new clients in new industries and in new geographies," he says.

Powered by machine learning, the company's software brings big-data insights to its clients' operational and marketing challenges. It can, for example, tell a grocer how much money it would make if it put eggs on the cover of a flyer.

An engineer by trade, Saarenvirta founded Daisy after seeing how little the business world uses data when crafting strategy.

As large companies become more complex, with millions of customers and a wide range of services, they are increasingly turning to tech like Daisy's to make sense of the vast amounts of information they generate.

"We have a proven track record," says Saarenvirta. "If we don't grow your net income, we don't deserve your business."

The results, so far, have been good. Two years ago, Daisy had a staff of 10. Today, it's a team of 40, and they're looking to hire 10 more.

Growth aside, Saarenvirta believes Daisy has a higher purpose: "Our mission is to generate wealth and reduce poverty. When companies are more profitable, they make positive impacts across society."

With eyes constantly on the future, it helps to have that kind of vision. **BY BARRY CHONG**

► **Daisy Intelligence**, daisyintelligence.com



Lauren Lake and Mallorie Brodie
Co-founders, Bridgit Solutions

Built-in solutions to concrete problems

By **KERRY BANKS**

Until recently, the co-ordination of work on construction sites remained largely low-tech.

Projects were still being managed with hand-scrawled notes, Excel spreadsheets and loads of email. "On big jobs, that might mean 10,000 items sent out to 30 subcontractors," says Mallorie Brodie, CEO and co-founder of **Bridgit Solutions**, of Kitchener, Ont., which has streamlined this cumbersome process.

Using Bridgit's real-time app, on-site contractors can log and track tasks, and share important project information with other mobile or desktop devices. They can post photos, along with a description of any work that needs to be corrected, finished or changed.

Brodie and co-founder Lauren Lake started Bridgit in 2012 while they were undergrads. The app is now being used on several thousand projects across North America, says Brodie. "We work with more than 125 contractors on residential and commercial projects that range from \$5 million up to a billion for large-scale commercial developments."

Bridgit's expansion into the lucrative U.S. market was aided by a \$2.2-million seed investment led by Hyde Park Venture Partners of Chicago and Vanedge Capital Inc. of Vancouver.

According to Brodie, the edge their app enjoys over rival companies in this suddenly competitive field is its simplicity: it can be up and running within 24 hours. Pricing is based on project size and duration. There's no limit on the numbers of users, which makes it a good fit for large projects with lots of subcontractors and lots of moving parts. "The more people who are using the tool, the more value it has," she says.

► **Bridgit Solutions**, bridgitsolutions.com

Taking the risk out of insurance

The last thing small business owners have is time to spend hours navigating the complex world of commercial insurance.

Sultan Mehrabi and Danish Yusuf co-founded **Zensurance** to help small- and mid-sized companies find the right coverage online—without the complex jargon and long processing times of traditional paper-based applications. Their technology allows users to be fully covered in a matter of hours, often through an entirely automated process.

In just two and a half years, Zensurance has partnered with 35 insurance companies. They've also built international relationships allowing them to learn from seasoned businesses abroad and offer their own insights as innovators in a \$50-billion market.

"We're doing a lot of things right here in Toronto that others are hoping to leverage globally," says Mehrabi. **BY VERONICA SHEPPARD**

► **Zensurance**, zensurance.com

Operation: Efficiency

Manufacturers are often good at collecting data, but bad at making sense of it. Humera Malik's AI platform puts their numbers to work.

By KARA COLLINS

Humera Malik was 12 years old when she caught the tech bug. As a young student in her native Pakistan, she was bored with rote math homework and decided to find a way to solve the long lists of equations more quickly. "I didn't want to repeatedly have to do the same old problems," Malik recalls. So, she developed algorithms to do the work for her on the family computer. "I was basically trying to create an Excel program myself. And when Excel came out, I was like, 'Oh man, why didn't I do that?'"

Fast-forward 30 years and Malik is still finding ways to make repetitive processes easier—though she has taken it a few steps further. Today Malik, co-founder and CEO of Toronto-based **Canvass Analytics**, develops a software platform that uses artificial intelligence and the Internet of Things (IoT) to help businesses streamline complex manufacturing processes. She says AI strengthens businesses because it can drastically reduce the time and cost of interpreting data and making decisions based on it.

At the same time, Malik is quick to point out that just incorporating AI into the manufacturing process doesn't guarantee positive results. Many companies spend a lot of time and money hiring experts and creating toolkits that will assess their data, she says, but this approach is not scalable, especially when considering the large volumes and types of data involved in manufacturing. "Industry is typically data rich, but information poor," Malik says, adding that her platform allows for repeatability and scale, converting text-based, numerical and other types of data into information that companies can actually use in their day-to-day operations without the need to hire an expert.

Her growing list of clients seems to indicate she's hit a nerve. Canvass works with Fortune 500 and Fortune 1000 companies around the globe. And although their privacy prevents her from naming names, Malik says they include some of the world's largest companies in steel manufacturing, pulp and paper production and agricultural processing. In most cases, Malik says, these companies want software that helps make their current operations more efficient, and detect equipment failures before they happen, so they can better plan for them.

Malik got her start in AI and IoT when she first moved from the U.S. to take a job heading up the new Smart Buildings Solutions at

Bell Canada in 2005. "We were embedding technologies in these very complex environments with lots of equipment and lots of machines operating. You'd put sensors on those machines to collect data related to them." But Malik noticed a problem: Companies could gather a lot of data, but how could they put it to use? She saw a huge opportunity. "The industrial market was a sleeping giant," she says.

Indeed, it is. A 2017 Accenture report says that investment in AI has the potential to double or even triple the annual economic growth rates of major developed economies by 2035, and increase corporate profitability by 38 per cent in that same span. Euromonitor International reported in September that the production value of high-tech goods is expected to triple to reach US\$16 trillion in 2030, "driven by emerging IoT solutions."

In this growing market, Canvass is positioned to add value in a unique way. "People spend months to years trying to go through data discovery, figure out which data is correct, and then learn how to build models around it," says Malik. "We've automated the entire process through our AI platform. So, when you want to apply it—in any case—the data discovery is done in days." Once the software determines a new (and better) operational model, it can be implemented very quickly. "That's why we say we're different," says Malik. "Because usually people would go in and custom-build those models."

Beyond its client list, there is other evidence that Canvass is gaining momentum. To date, it has done two rounds of VC financing—US\$1.6 million from Canadian venture capital firm Real Ventures in 2017 and US\$5 million from Google's Gradient Ventures, along with Bedrock Industries, Viaduct Ventures and Real Ventures, earlier this year. In September, it was named a CIX Top 20 Most Innovative Company and also made Network World's 10 Hot AI-Powered IoT Startups list, while Malik herself was a recipient of the 2018 RBC Canadian Women Entrepreneur Awards in the "Ones to Watch" category.

Malik welcomes these successes. For two years before launching Canvass in 2016, she spent hours at her computer on countless evenings to create software that would solve inefficiencies. Kind of like she did for those math problems on the family computer, many years ago. Today, she's ready for the "sleeping giant" to wake up. ●



Canvass Analytics, canvass.io

*Humera Malik,
Co-founder and CEO*

Rebooting operating systems

By JOHN GREENWOOD

Today's surgeons have actual superpowers, able to operate on areas so small, they're invisible to the human eye, thanks to the latest innovations from some Toronto-based medical device startups.

Precision equipment for surgeons "raises everyone's game" in the operating theatre, according to Damian Lamb, managing director of Genesys Capital, one of Canada's largest venture capital funds focused on healthcare.

Take **Synaptive Medical Inc.**—scientists at its labs in downtown Toronto have developed technology that combines the power of magnetic resonance imaging with robotics to allow surgeons to operate on minuscule areas of the brain that are normally off limits. When using the company's technology to operate, doctors' incisions are much smaller than conventional surgery, leading to higher precision, better outcomes

Profound Medical Corp., another startup, based in Mississauga, Ont., is taking smart surgery a step further. It's developing robotic technologies to treat prostate cancer, one of the most common forms of cancer in men. Formed in 2008, it went public on the TSX Venture Exchange three years ago and since then, has successfully raised more than \$40 million.

Its lead product, TULSA-PRO, uses a miniature robotic tool delivered through the urethra to target diseased cells with blasts of ultrasound. The surgeon places the device and sets the process in motion, TULSA-PRO does the rest—closely monitored from a console showing real-time magnetic resonance imagery of the procedure, displaying the tool's precise location in relation to the patient's prostate. This represents a huge improvement on conventional treatment, which



and faster recovery. Not to mention lower costs for healthcare providers and insurers.

"What we bring to the table is the ability to find efficiencies in one of the most expensive venues of care in the hospital: the neurosurgical department," says Synaptive co-founder Cameron Piron, a veteran tech entrepreneur who plowed profits from previous startups to help get Synaptive off the ground.

Formed in 2012, the company, still privately held, has grown from six employees to over 250 and has already racked up market approvals from jurisdictions around the world. BrightMatter™, its flagship product, is now used in more than 40 hospitals in Canada, the U.S. and Thailand. The company plans to disclose the name of its first European customer before the end of the year.

With a growing list of accomplishments, the company has drawn investments from several larger institutional funds and a private equity firm.

often comes with side-effects such as impotence and incontinence. "Something like this changes surgery altogether," says Lamb, whose fund owns a stake in Profound.

"We are creating a tomorrow where physicians can precisely and confidently [cauterize] diseased tissue," says Natalia Burachynsky, product manager at Profound.

The TULSA-PRO is already marketed in Europe, and the company is currently awaiting results of an ongoing clinical trial before applying to the U.S. Food and Drug Administration for approval to market it in the U.S. With favourable results, Profound Medical could receive the green light as early as the end of 2019. Given prostate cancer's prevalence—an estimated one in seven men globally are diagnosed during their lifetimes—the need, and the opportunity, is enormous. "It's a big one," says Burachynsky. ●

► **Synaptive Medical Inc.**, synaptivemedical.com

► **Profound Medical Corp.**, profoundmedical.com

The paper shredders

By DAVID PATERSON

Call it death by a thousand paper cuts. The never-ending, spirit-sapping, creativity-crushing burden of admin hits small businesses especially hard, consuming up to one-fifth of their work hours.

With small firms making up well over 90 per cent of companies in most countries, there is a massive market for technologies that can shred their paperwork, handling tasks like invoicing, employee scheduling, payments or keeping accounts. And Canadian companies are stepping into the breach.

They are creating cloud-based technologies that let users perform previously time-consuming tasks with a tap of a smartphone. **Plooto**, for example, lets companies pay suppliers anywhere in the world over email and reconciles payments to invoices automatically.

Corey Gross is co-founder and CEO of **Sensibill**, which creates receipt-tracking technology used by millions of entrepreneurs and microbusinesses in North America and Europe. He says small company owners don't have time to learn complex software to do their books—they need technologies that are as intuitive as Instagram.

Sensibill's platform uses artificial intelligence to extract more than 150 pieces of information from a smartphone photo or digital version of a receipt. It logs data such as item information, tax codes, dollar amounts and tracking numbers, and then structures it for use with tax-filing or accounting software. Sensibill is white-label technology, integrating so

seamlessly with dozens of banking apps that it is barely noticeable to the customers that use it.

However, come tax season they feel its benefits. Self-employed people are up to eight times more likely to be audited, and having digital records in a tax-friendly format can save them thousands of dollars in time.

These services have been embraced by younger, digital-native entrepreneurs, but Sam Pillar, CEO of **Jobber**, a business-management platform, says that in the last three or four years, older business owners have also jumped on board.

"They may have been working with pen and paper for 25 years, but now they're realizing they have to adapt to stay competitive," he says.

The reason: Admin-busting technologies do more than just remove headaches for business owners—they make companies more agile and improve the customer experience.

Jobber, for instance, is used by home-service companies like landscape gardeners or heating maintenance firms. Its platform handles job quotes, invoicing and scheduling systems that

ensure teams turn up to the right house and do the right work. It has functions for clients to change their work order or leave notes such as how to access the property, and for teams to message customers if they're running late.

Pillar is bullish about the future of his company, likening its prospects to that of Shopify, Canada's superstar startup. It's easy to see why. Companies like Jobber, Plooto and Sensibill are building the invisible infrastructure for a hidden market—but it is a huge market. Jobber's customers already deliver \$4 billion in services a year with its platform, but the company estimates it has tapped only a fraction of one per cent of the market that runs to some three million home-service companies in North America alone.

"We have only begun to scratch the surface of the opportunity that's in front of us," says Pillar. ●

► **Plooto**, plooto.com

► **Sensibill**, getsensibill.com

► **Jobber**, getjobber.com



Jobber



Alex Peters and Rohan Mahimker
Co-founders, Prodigy

Game play for serious learners

When it comes to learning, the more control kids have, the better they respond.

That's the core tenet behind Burlington, Ont.-based startup **Prodigy**, which provides free curriculum-aligned math games for kids, allowing for customization, gamification and gradual learning to improve confidence and skill-building.

Co-founders and co-CEOs Alex Peters and Rohan Mahimker met while studying Mechatronics Engineering at the University of Waterloo. The pair launched the company in 2011, based on a school project. "I don't think that would have happened at another university," says Peters.

Today, the program has over 7.5 million monthly active students around the world. And they're growing.

Prodigy will soon open their first international office in Bangalore, India, to focus further on mobile development. BY VERONICA SHEPPARD

► **Prodigy**, prodigygame.com



New work order

Upheavals in technology, the economy and society are creating big opportunities for developers of innovative tools for hiring and managing talent

By **JIM MIDDLEMISS**



\$700B US

Cost of loss in productivity from disengaged employees.

FORTAY.CO

100%

Increase in unsolicited employment applications at companies with an engaged culture.

FORBES, MAY 2017

4X

Amount by which profits increase at companies that invest in employee experience.

HARVARD BUSINESS REVIEW, MARCH 2017

55%

Number of employees that will choose a prospective employer based on workplace tech.

WALL STREET JOURNAL, JUNE 2018

100M

Estimated number of new jobs needed in the U.S. to replace those lost to AI in the next two decades

FUTURE OF LIFE INSTITUTE, 2017

the app, they can start receiving, and responding to, job posts immediately. The inspiration for TimeSaved came from Jacob's own experience in retail management. The challenges he faced staffing a flagship store prompted him to return to his tech roots to "solve the problems" he was seeing.

Are there enough of these types of workers to keep companies like these in business? If you assumed that it just applied to handfuls of newly downsized, independent contractors working for multiple employers until their next full-time job comes along, think again. In its report *Workforce 2025*, employment consulting firm Randstad Canada classified 30 per cent of workers as being part of the "agile" or non-traditional workforce, which includes consultants, as well as contract, contingent, part-time, freelance and virtual workers. It expects that to increase to 35 per cent by 2025.

The rise of this non-traditional workforce is, in turn, just one element in a larger story of how a broad array of technological, social and economic changes is fundamentally altering the nature of work, hiring and skills development, as well as the relationships between companies and their people. And just as the rise of the gig economy inspired Mozes and Jacob, other entrepreneurs are drawing on the latest technology and professional research to create new businesses that turn conventional thinking on these topics on its head.

"There is a fundamental shift hitting the core of businesses," says Krista Jones, managing director, Enterprise at MaRS Discovery District. Much of it, Jones says, is about technology and the way people interact with the tools they need to do their jobs. Developments like artificial intelligence and robotics are breaking apart jobs, and as these trends progress, Jones says, it's less likely that a single degree or certification will define a job. In its place, a "hybrid job market" is emerging, where skills and knowledge come from two or three different pathways and flexibility is a fundamental attribute.

In a study aimed at younger job-seekers, RBC found similar trends. It reported that over the next decade, 25 per cent of Canadian jobs will be heavily disrupted by technology, and half will require a skills overhaul. Yet, the country will also add an estimated 2.4 million jobs that require a new mix of soft skills. Talents like critical thinking, social perceptiveness, active listening and complex problem-solving will be in demand.

What does this mean for companies? Brad Furtney, a former Twitter and JUICE Mobile executive who now consults with startups on strategy, says they face several related challenges in preparing for the future workforce.

The first is the pace of change when it comes to technology. "It will impact everything from recruiting, to retaining and hiring the right people." The second: being ready for the fact that "people are going to make mistakes. Lots of them." The third: talent management. "We are now in the phase of constant learning. If you do not have a learning mindset, you are not going to survive."

Among the startups springing up to help companies navigate this new landscape is **Procertas**, which

Erika Mozes and Rohan Jacob are two Toronto-area startup founders with slightly differing visions but one thing in common—they're both keeping the growing gig economy on its upward climb by connecting part-time and temporary workers to employers that want to hire them.

Mozes is chief technology officer and co-founder of **Hyr Inc.**, a business that matches independent, skilled workers with employers in the hospitality and retail industries who have shifts they need filled. She likens it to Airbnb for hourly-paid workers. As with home- or ride-sharing services, Hyr's platform offers what Mozes calls "skill-sharing"—the ability for employers to tap into a skilled workforce without using a temp agency or hiring someone new. Employers post available shifts on Hyr, and workers, who are independent contractors, respond through the Hyr app. The employer then selects from among those who are interested in the shift.

Jacob is founder and CEO of **TimeSaved**. Where Hyr seeks to help employers avoid staffing agencies, TimeSaved partners with them. Its platform enables those agencies to manage and track job candidates in their database, post jobs to customized lists and interact with candidates through a white-label mobile app. When workers registered with the agency download



“
We can provide
real-time
insights across
the management
structure for better
decision-making
on both the
hiring side and
the employee
experience side.

Marlina Kinnersley
CEO, Fortay

”



provides technology training and assessment for the legal industry. It works with law firms and other companies with legal staff to ensure their professionals are using their technology correctly.

Founder Casey Flaherty says companies shouldn't simply assume that technology works and their employees will know how to use it. For every \$1 in tech investment, he advises that a company should budget \$100 or more for training.

This is especially true as staff become more tech-savvy and start demanding tools they think would increase productivity. Echoing Furtney above, Jane Diercks, Canada market unit leader at tech consulting firm Capgemini, says employers need to identify ways to link their people together better than they do now. It's a “whole different attitude,” she says—employees will scrutinize employers and demand better tools to help them do their jobs better and make their employers succeed.

There are a number of new tech-based service firms in the GTA emerging to fill those needs, too. Companies like **Skrumble** and **Planbox** are building solutions to create a more collaborative and agile workforce. Others, however, take the approach that the best way to address these challenges starts with hiring better in the first place.

A good example of this strategy is **Fortay**, a startup founded on the premise that traditional hiring practices are too subjective and don't put culture first. Fortay argues that identifying candidates whose core workplace values and cognitive fit are aligned with the company's workplace culture is the key to successful hiring and, in turn, employee job satisfaction and better overall company performance. To identify those who will be the best fit, it works with clients to develop a value

and belief assessment questionnaire for candidates.

“I speak to organizations all the time that say, ‘We assess culture fit throughout the hiring process.’ But the problem is that they are looking at it from a very biased point of view—‘Who looks like me? Who acts like me,’” says Marlina Kinnersley, co-founder and CEO.

This bias leads to sameness and a lack of diversity and inclusion, not a successful cultural fit. Fortay takes the ‘who’ out of it, she says, and looks for alignment on things like how work gets done and other shared workplace values and goals. “Those are the questions that are going to help you make a better match.”

Fortay launched in 2015, targeting startups. Since then, it's found an equally pressing need in mid-market and enterprise-level firms.

Its tools aren't focused purely on hiring, but also on ongoing talent management and monitoring of an organization's “cultural health.” Fortay's platform uses machine learning to listen for “signal markers,” she explains. “As team members complete the assessment, it's consistently analyzing that information and updating that cultural profile in real time.”

By building this technology into the platform, Kinnersley says, “we can provide real-time insights across the management structure for better decision-making on both the hiring side and the employee experience side.” ●

- **Hyr Inc.**, hyr.work
- **TimeSaved**, gettimesaved.com
- **Procertas**, procertas.com
- **Skrumble**, skrumbler.com
- **Planbox**, planbox.com
- **Fortay**, fortay.co



Global footprint, community feel

Collaborative spirit helps Waterloo Region punch well above its weight

By **CRAIG DANIELS**

In 2011, Michael Litt and Devon Gallo-way, newly exited from influential Silicon Valley incubator Y Combinator, were faced with the question of where to establish their fledgling video marketing analytics company, Vidyard.

The decision, as it turned out, proved to be not that difficult. The co-founders decided to return to their roots. To Waterloo Region.

“We looked at New York, we looked at Boulder, we looked at Austin, we looked at all the major tech hubs in the world, and at the time I don’t think Waterloo was as recognized as it is today,” explains Litt, Vidyard’s CEO.

“But we saw a clear indication in Waterloo Region of all the things that make us excited, and we saw all the things that we were looking for that we needed to compete as a company. It was a no-brainer decision, ultimately, to decide to scale the company here.”

High-density startup hub

Today Vidyard is one of many Waterloo Region tech success stories, and the region—the place that the *Globe and Mail* dubbed “Startup City” in a 2015 feature story—is today recognized the world over as one of the most important technology ecosystems on the planet.

It has the highest density of startups anywhere save Silicon Valley. It is home to eight of Canada’s largest technology companies, with combined revenue of more than \$15 billion. This ecosystem includes giants like Google and OpenText, and more than 1,000 other tech-related

companies. It’s a place recognized as a leader in the field of quantum computing, with research unfolding at University of Waterloo and backed, in part, by Blac Berry co-founder Mike Lazaridis.

And it’s home for startups, producing nearly 2,000 new companies in the past six years and more than \$650 million in investment. Companies like Thalmic Labs, Clearpath Robotics, Miovision, Sortable, SSIMWAVE, eSentire, Kik, Bridgit and, yes, Vidyard, all call Waterloo Region home.

Talent + community

“There are really two reasons why Lauren and I made the decision to start our company here,” says Mallorie Brodie, CEO and co-founder of Bridgit, which helps streamline communication and administrative processes for construction companies.

“The first is the engineering talent. The second thing is it’s extremely helpful to be able to collaborate with other companies that are at a similar speed in very different industries.”

Talent and ecosystem. Those are the two main ingredients founders repeatedly cite that set Waterloo Region apart from other centres and fuel its growth as a tech hub.

The talent pipeline is fed by more than 75,000 students at three post-secondary institutions—University of Waterloo, Wilfrid Laurier University and Conestoga College. Each school plays to a range of strengths. In UW’s case, co-op-based computer and engineering programs have become calling cards known the world over.

Startups helping startups

And as far as ecosystem, Waterloo Region’s mid-size population of about half a million, and its barn-raising, how-can-I-help ethos have become the secret sauce that savvy entrepreneurs have learned to cherish.

“There’s always somebody who is just ahead of you or just behind you in terms of stage of company,” explains Brodie.

“So, we are able to share any lessons we’ve learned with companies that are just starting up. Everyone seems to be only one or two degrees of separation apart in this ecosystem.

“That leads to conversations that really help us get to the next level as a business.”

Adds Litt: “I think that pay-it-forward mentality, when executed appropriately at every stage of the ecosystem, just continues to build and grow because one entrepreneur helps three, three entrepreneurs help nine, nine entrepreneurs help 18, and so on and so forth.”

Additionally, factor in Waterloo Region’s relatively affordable housing and close proximity to Toronto, its scale and its growing strength in AI, and you have a recipe favouring any would-be entrepreneur.

What’s it all mean? Just last year, Sam Altman, President of Y Combinator, in town to receive an honorary degree from University of Waterloo, said, “I think this is one of the most interesting startup hubs in the world.

“There are more YC companies probably within a kilometre of here than anywhere else in a square kilometre, besides the Bay Area, anywhere in the world.

“So, I expect that ascendancy to keep going.” ●



Brizi

Global influence

Social media users love sharing their experiences, and two Toronto startups have found a way to turn that passion into profit.

#paid and **Brizi** help clients share stories and promote their brands. While **#paid** gets online influencers to create content and sponsored posts, maximizing impact by targeting relevant audiences, Brizi engages users directly, allowing them to take control of remote cameras in arenas and other public venues, and then share the images they capture.

If you're on social media, chances are you've seen a **#paid** creation. With a stable of over 20,000 influencers, **#paid** works with major brands like Coca-Cola, Microsoft and IKEA, providing a seemingly endless stream of content.

Brizi, meanwhile, has also expanded globally, delivering breakthrough marketing to clients in six countries. At the 2017 Madrid Open, Brizi's cameras captured more than 18,000 photos that reached over 2.9 million people.

Success abroad requires a strong home base, and Toronto has been an ideal launchpad for both ventures. Bryan Gold, co-founder and CEO of **#paid**, believes distance from the San Francisco Bay Area has allowed his company to grow quickly. "It's less about competition here and more about building a strong, supportive community," he says. Of course, that hasn't stopped Gold from expanding **#paid**'s footprint abroad. Already in New York City, it will soon start operating in Los Angeles as well.

Brizi co-founder and CEO Anna Hu, citing the Toronto area's talent, diversity and universities, believes Canada's largest city has one of the world's best tech ecosystems. "It's an incredible place to set your roots," Hu says. "Having mentors and investors who believe in us, while having easy access to international markets, is invaluable."

#paid and Brizi's successes reflect the story of Toronto: a young city with humble roots that became a global player through cosmopolitan values and innovative thinking. That's a story worth sharing. **BY BARRY CHONG**

► **#paid**, hashtagpaid.com

► **Brizi**, brizicam.com

Selling hospitals on new technologies

By **JORDAN ADAMS**

Selling new products into the healthcare system is arduous: regulations are strict, doctors are pressed for time and hospital budgets are strained.

That makes it difficult for life science companies to commercialize life-saving products—even after spending decades and millions of dollars developing them.

Salespeople face the tough task of needing to thoroughly understand their product and know which sales messages will be effective, while also ensuring they don't stray outside the bounds of regulatory compliance.

ACTO is a SaaS platform for the life sciences industry that consolidates mobile learning, sales enablement, field coaching and compliance

management. It helps sales reps stay on message and gives senior leaders insights about their customers and teams, while its predictive insights feature follows the patterns of high-performing salespeople and recommends their sales messages to underperforming reps.

"This helps turn B players into A players," says Parth Khanna, CEO of the company.

ACTO has over 40 customers around world and is backed by top Canadian VCs, including MaRS IAF, Extreme Venture Partners, Panache Ventures and Innovation Grade Ventures. ●

► **ACTO**, actoapp.com



Onsite insights

For maintenance contractors and service firms that work across multiple job sites, keeping track of staff, equipment and work orders is an administrative juggling act.

inField Solutions, a nimble, Markham, Ont.-based startup, has created a software platform that adjusts to individual client needs (digitizing paperwork, optimizing vehicles routes, monitoring water flow, etc.)—and automates processes to the particular job. The company tailors roughly 30 per cent of its platform to each client, making it adaptable to multiple business sectors—and open to seemingly endless growth opportunities.

Prasad Rao, partner and vice president of product at inField, says the company's focus on engaging with its customers has helped it spot new opportunities quickly. "If we didn't communicate with our customers, we'd be nowhere," he says.

Building relationships with the Toronto Region's growing innovation community has also been vital. With minimal marketing budget, Rao has attracted new customers and investors simply by networking within the ecosystem. In the last two months, inField has attracted four new clients and expanded its base to 600 users.

In the next half year, inField expects big changes, as it plans to double its staff. However, Rao remains confident they're on the right track: "As long as we continue to listen to customers, we'll be just fine." **BY BARRY CHONG**

► **inField Solutions**, infieldsolutionsinc.com

Virtual grammar police

By LARA TORVI

For some authors, the problem isn't writer's block. They can put endless words on paper, but not necessarily in the most compelling way. And while computers aren't yet giving writers a run for their money, they can certainly help with the editing of their prose.

Enter **Scribendi**, a tech company based in Chatham, Ont. that is betting on the power of AI to help people get the (grammatically correct) word out. Or, to be precise, 1.3 billion words and counting.

For more than 20 years, Scribendi—the name comes from the Latin *cacoethes scribendi*, which means "the insatiable urge to write"—has provided online editing services to writers around the world, processing more than 400,000 orders from China to South Africa.

The company was recently acquired by entrepreneurs Patricia Riopel and Enrico Magnani, who saw a huge growth opportunity: "The business model as an online company was really scalable. There are no limitations: as long as you can connect to our website, you can use our services," says Riopel, president of Scribendi.

This summer, Scribendi announced a new AI-powered productivity tool for editors. Using neural networks and Scribendi's vast data troves, the platform tackles grammatical errors with 20 per cent greater accuracy than other tools on the market. "We're able to do this because Scribendi is not a new company. Over the years, we've accumulated a mass of data that allows us to train our algorithms and build the technology based on our experience in the field," says Riopel.

No doubt, the humans whose work helped train those algorithms will be happy to know their editing craft lives on. ●

► **Scribendi**, scribendi.com



Filling in forms can be fun. Really.

Whether you're applying for a mortgage, insurance or university, filling out long application forms is tedious.

Enter **FormHero**, an intelligent, digital form-creation service for large companies.

"I was quite frustrated with the same old approach of trying to reproduce paperwork on a computer," says Ryan Kimber, co-founder and CEO. "The experience we used to have in the '90s when you would talk to someone at a bank and they would fill out the paperwork for you was a much better user experience."

FormHero asks only relevant questions in a clear, conversational way and doesn't store any of the collected data in the cloud, bringing a level of security that large enterprises expect. So, no more clicking scores of tiny boxes or trying to figure out confusing questions.

FormHero is growing rapidly and recently closed a \$2-million investment from TIMIA Capital. **BY JORDAN ADAMS**

► **FormHero**, formhero.io



Maple, getmaple.ca

*Roxana Zaman,
Co-founder and COO*

Doctors on demand

Maple, a new mobile app that provides all-day, any-day online access to doctors across Canada, is making the waiting room obsolete

By CELIA MILNE

When you get sick or hurt, it can take days or weeks to get an appointment with a doctor. Then, you drive a long way to get there. You sit in the waiting room with other sick people. It's a familiar scenario.

Now imagine a faster, easier way. Imagine having a secure e-chat or video call with a doctor within minutes of sending your request. You describe your symptoms online using your mobile phone, desktop or tablet. You get a diagnosis and treatment plan, and your prescription gets sent digitally to your pharmacy of choice—all while you sit in your home or office.

What you are imagining is a system that has already been put into place, created by a company called **Maple**.

Maple is an innovative mobile app, launched in January 2017, that provides all-day, any day, online access to doctors across Canada. "It is incredibly convenient for both the patient and the physician, and there is almost zero waiting time for patients," says Dr. Bharat Bahl, one of almost 200 doctors in the growing Maple network.

The app is designed to help people with common, non-emergency medical conditions such as the flu, urinary tract infections, eye and ear infections, skin issues, fever and diarrhea. It can also be used for sexual health issues and mental health concerns. Dr. Bahl helped a patient with severe anxiety and agoraphobia, who wanted to get better but couldn't leave her home to see a doctor. "I think we were able to take a small but meaningful step in breaking the self-perpetuating cycle that she was stuck in," he says.

The cost per consultation on Maple is \$49, but is higher on weekends (\$79) and at night (\$99). There is also a membership option.

Maple sees itself as an add-on to provincial healthcare programs, which generally do not cover online consultations with doctors. "We have a healthcare system here in Canada that is envied around the world. So why can't we have a conversation with a doctor online?" asks Roxana Zaman, co-founder and COO of Maple.

In 2015, Zaman left behind a steady, upwardly mobile job in the banking sector to join entrepreneurs Dr. Brett Belchetz, an emergency room physician, and Stuart Starr, a technology and design whiz, to create and launch the company.

They attracted investment from MaRS Investment Accelerator Fund (IAF), among others and, to date, have raised \$5.5 million. "Maple cuts through the noise because you have founders who

understand health and business; they are bringing something really unique to the table," says Michelle McBane, senior investment director at IAF.

It seems there is a great Canadian appetite for instant medical care. One year after launch, Maple had 20,000 users, a number that climbed to 40,000 by October 2018. Sales are growing at a rate of 15 per cent month over month, and Maple is now operating in every province. The company has expanded to work with employers to provide virtual healthcare services to their employees, and it has partnered with insurance company Sun Life Financial, which offers Maple's digital services to clients.

Like many online services, Maple asks users to rate their experience after every visit. More than 91 per cent of patients have rated the service as five-out-of-five, a stat that thrills Zaman. "The best part of my job is going through the reviews. I love to hear, 'It made my day and I'm going to tell people about it,'" she says.

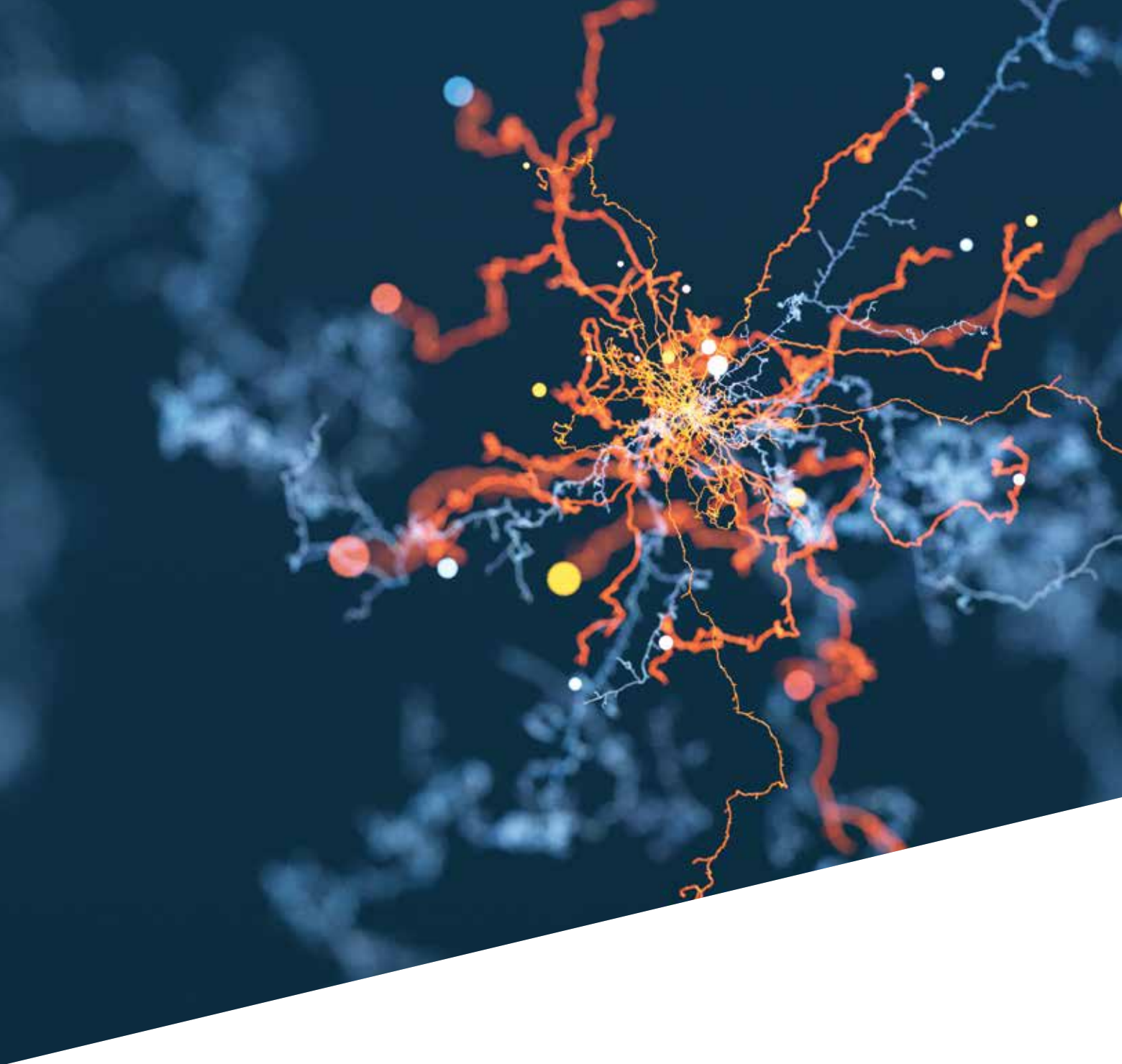
"It has been a tough, challenging road, but I have not looked back," says Zaman. "Starting a business takes courage, perseverance, resilience and a high tolerance for risk. What keeps me motivated is the idea that I can directly help make a difference in people's lives," she says.

Maple's platform is now being used in the hospital system, with its first six-month pilot taking place at the Western Hospital in Edmonton, P.E.I., a small community of only 1,149 residents. Patients there will now be able to consult with their doctor through a computer monitor that has been wheeled into their room, enabling doctors to consult remotely and see their patients on the fly.

What's next for Maple? The company wants to keep building its network of doctors and expanding globally. They also want to make Maple accessible to as many people as possible by working with employers, insurers and hospitals.

For Dr. Bahl, who works 12 to 15 shifts a month in a busy hospital emergency department, Maple allows him to help people on his own time, from the comfort of his home.

"In some cases, patients need to see a physician in person," he says. "But there are a lot of appointments that could be done using a platform such as Maple. This benefits patients and physicians, and allows for a more efficiently run healthcare system. It is the future of medicine." ●



AI's next breakthrough

Already a global centre for artificial intelligence research, southern Ontario—Canada's largest AI hub—is now leading an all-out push to accelerate the technology's commercial impact

By **JASON KIRBY**



300

Number of AI startups
in Toronto Region.

500%

Increase in AI-related
employment opportunities
in Canada between
2015 and 2017.

INDEED.COM

\$300K

Potential salary
commanded by AI
experts.

THE NEW YORK TIMES

\$169M

Investment in Canadian
AI sector in second-
quarter of 2018—an
all-time high.

\$15.7T

Expected increase in
global GDP attributable
to AI by 2030.

PWC

quickly picking up speed,” says Glozman, who expects Chisel to expand from its current 16 employees to 50 in the first quarter of next year.

Chisel is just one example of the all-out push to commercialize AI technologies in southern Ontario. For decades a small but dedicated cadre of academics toiled away on theoretical research into deep learning—the idea that artificial neural networks, modeled after the networks of neurons in the human brain, could be taught to recognize and classify complex patterns in massive quantities of data. And while those academics, such as Geoffrey Hinton at the University of Toronto—now regarded as the “Godfather of deep learning”—quietly enjoyed financial support from the government, their efforts to develop advanced neural networks and machine learning technology were overlooked. But in the past five years computing power has finally caught up to their vision.

Now the students and acolytes of those early researchers are forging the technology into practical uses that promise to transform entire sectors of the economy, with the potential to form a new generation of large, industry-leading Canadian companies. “In machine learning, people keep making predictions about things that’ll happen in decades to come, but they keep coming true much faster,” says Simon Smith, chief growth officer at Toronto-based **BenchSci**, which uses AI to help medical researchers find antibodies for their drug-discovery experiments by analyzing millions of candidates in scientific literature in a matter of minutes, rather than weeks or months. “If I play that out in Toronto, I think you’ll see AI companies get bigger and go public faster than people had expected. The next phase of AI will be the acceleration of commercial impact.”

The list of established technology companies already opening labs in the corridor stretching from Greater Toronto to Kitchener-Waterloo is long and growing by the month: Google, Microsoft, NVIDIA, Samsung, Uber, Intel, LG, not to mention non-tech companies like General Motors (for self-driving cars) and Thomson Reuters (for cognitive computing).

Meanwhile, there are now roughly 300 AI startups in the region, making it the largest of several Canadian AI hubs, and investor appetite remains strong. For instance, in May BenchSci raised \$8 million in Series A financing, which saw the AI venture capital arm of Google’s parent company, Alphabet, make its first investment in Canada. Another startup, Toronto-based **Rubikloud Technologies**, helps retailers with machine learning tools that automate inventories and boost customer loyalty. It raised \$37 million in January in a financing round led by Intel Capital. All told, in the second quarter of 2018, investment in Canada’s artificial intelligence sector hit an all-time high of \$169 million, up from \$83 million in the previous quarter, according to accounting firm PWC. The 13 venture deals in AI accounted for roughly 20 per cent of all venture investments in Canada by dollar value.

That investors are rushing to fund new AI companies in Ontario is a welcome development. If there’s a

While studying computer science at the University of Waterloo in 2015, Ron Glozman grew annoyed by the 1,000-page textbooks he was assigned to read, since only a fraction of the material ever appeared on final exams. Glozman knew he wasn’t alone, so he devised an algorithm to spit out brief summaries of the most important parts. Then, he released it in the form of a free app. Within two weeks it was downloaded thousands of times by students in 33 countries.

Glozman’s algorithm may have been a technological success, but it was a business failure. Students simply didn’t have money to pay for such an app. So, Glozman pivoted and set his sights on the document-intensive—and deeper-pocketed—insurance industry, developing machine learning technology able to read reams of insurance forms, like client records and claims, in milliseconds, and then extract key policy information to make recommendations to insurance brokers.

Today, Glozman is the CEO of **Chisel**, an artificial intelligence startup in Toronto that’s currently working with one of the largest insurance companies in Canada to reshape the industry. “We’re in talks with six of the 10 biggest insurance companies in Canada, so things are

concern, it is rooted in Canada's previous struggles to transform innovative startups into big, world-beating technology companies—fostered at least in part by an unwillingness among established Canadian companies to adopt the new technologies on offer from upstarts.

With the AI boom, however, there are signs that things are different, says Jodie Wallis, managing director for artificial intelligence in Canada for Accenture. Companies are more receptive to exploring how AI might help their businesses than with earlier technological advances, for instance, while corporate Canada has enthusiastically gotten behind public-private initiatives like the Vector Institute for Artificial Intelligence, which opened last year in the MaRS Centre in Toronto. Half of its initial funding of \$125 million came from 33 corporate sponsors, including Canada's five largest banks, Air Canada, CN, Shopify, Magna International and Loblaw Cos. Ltd. (Hinton, who since 2013 has split his time between Google and the University of Toronto, is Vector's chief science officer.)

There are other hurdles, of course. All corporations are wary of the unintended consequences that might come with adopting artificial intelligence technologies in their businesses. And the prospect of giving smart machines the responsibility of making decisions raises thorny questions about privacy and consent, accountability and bias.

None of this is lost on entrepreneurs like Maaz Rana, the co-founder and COO of Toronto AI startup **Knockri**. The company has developed tools to automate the screening of potential job applicants by analyzing video interviews while completely ignoring race, gender and disabilities. "When you are looking to commercialize, your AI needs to be really cognizant about ethics," he says. "People go through various

stages when thinking about AI—the initial fear, education, then acceptance. We have to keep driving home the education piece."

Certainly, one of the biggest fears AI companies face in trying to commercialize their technologies is the potential for massive job losses as smart machines take over tasks once done by humans. However, such worries fail to consider the new jobs the AI boom is creating. "For every machine learning engineer at a startup you need 10 people to commercialize what they're creating, and in Toronto you have the talent pool needed to do that," says BenchSci's Smith, pointing to jobs like front-end developers, designers, marketers and sales people.

This is an important moment for Canada's burgeoning AI industry, says Wallis. As AI entrepreneurs scale up their companies, adding new employees, tapping new markets and developing additional revenue streams, there's an opportunity for Canada to extend its early academic advantage in artificial intelligence and become a commercial leader in the sector. "In Canada, we tend to be conservative when it comes to adopting new technologies, but because we have such an advantage on the academic side, it's quadruply important to set our sights on becoming leaders in economic value added," she says.

For his part, Glozman at Chisel is intent on growing the company and remaining independent, with an eye to eventually taking the company public. "I've had people offer to buy me out and I've turned them down," he says. "I want to be the Google or Microsoft of Canada." ●

- ▶ **Chisel**, chisel.ai
- ▶ **BenchSci**, benchsci.com
- ▶ **Rubikloud Technologies**, rubikloud.com
- ▶ **Knockri**, knockri.com



“

I've had people offer to buy me out and I've turned them down. I want to be the Google or Microsoft of Canada.

Ron Glozman,
CEO, Chisel

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Scaling is hard. We can help.

OneEleven: A reactor space for growing companies

By SIRI AGRELL

Some things are built to scale. At OneEleven, we know that the best companies in the world grow and flourish because they have brought together all the right elements: the idea, the technology, the talent, the investment and the ambition. That's how great ecosystems grow too, and we pride ourselves on identifying both the companies and the global markets where scale can happen.

Companies we believe in

OneEleven targets select global cities with a high concentration of technology businesses that are past the startup phase and into periods of substantial growth: acquiring customers and investment while rapidly expanding their teams. Working with the local ecosystem players and VCs, we identify the most promising companies to join the OneEleven community as they enter these periods of accelerated growth. We believe in them, their products and their teams, and we focus on making sure they succeed.

Focus on growth

If incubators and accelerators help

startups develop their ideas and find a market, then OneEleven is a Reactor: a place where all the right elements combine for a growing company to scale. By providing everything our members need, all in one place, we allow them to focus more of their valuable time on growing their business without distraction.

It all starts with providing a physical space where these high-performing companies can grow and engage with one another, learning from other teams and feeding off the expertise and drive of fellow entrepreneurs, technologists and problem solvers. Our locations are carefully designed to provide the type of environment needed by companies at this stage, including enclosed offices, and lots of meeting space suitable for meetings with investors, customers and recruits. Within the space we build community through programming and events, access to corporate and ecosystem partners, and curated introductions to investors, advisors and potential customers.

In the service of scale

But it doesn't stop at office space and community, we take it further by tackling

common obstacles faced by companies at this stage of growth. Using data, our in-house expertise and our own economies of scale, we offer an ever-growing platform of services that our companies would individually need to source, saving them time and money that they can re-invest in their growth. Whether it is recruiting and HR support, insurance, banking, alternative sources of capital, accounting, payroll, technology support, or customer acquisition, we have done the legwork on behalf of our community to provide quality services at pricing no individual company could secure. While the cost savings are important, it is often the significant time savings that our members cite as the value that they see in our service offerings.

Launched in Toronto, our founding location is home to more than 40 scaling companies and has graduated more than 25 alumni companies. Some of Toronto's fastest-growing companies have been through OneEleven: from Wealthsimple to KOHO, Statflo, Borrowell and Tulip Retail.

When our companies succeed, we succeed. OneEleven: Built to scale. ●

Bye-bye boxed-in workers

By JASON KIRBY

In many companies it's a rite of passage—employees head to a bar after work to complain about their bosses, while managers are at another bar complaining about their employees. For Brennan McEachran, co-founder and CEO of Toronto-based **SoapBox**, it's a missed opportunity that reflects decades of failed efforts to boost employee engagement.

Which is where his company comes in. Soapbox has developed a set of tools to help managers better communicate with their employees, whether in meetings and town halls, or when gathering feedback about ways to improve the workplace. "We're trying to make those conversations between employees and managers happen in a productive way," says McEachran, who founded the company in 2010.

McEachran says for too long employee engagement has been "a fluffy thing that HR talks about" when in fact, the single biggest determinant of engaged staff is what they think of their bosses. Which is why SoapBox was designed for managers instead of HR departments. There's a free version available for managers to download and a premium version for companies to purchase. The tools, which include best practices guides, action-item trackers and an artificial intelligence component that suggests agenda topics and questions to ask, are designed to help managers and employees share feedback "in a low-friction, natural way," he says.

To date, more than 750,000 employees have used SoapBox's software, and it's attracting

1,000 new businesses each week with its free version.

But sometimes, a good manager-employee dynamic isn't enough to keep staff engaged, especially if they feel they're not being paid enough. This is particularly true in the competitive world of sales, where variable compensation can be hard for managers to set and for employees to understand. Another Toronto startup, **Forma AI**, helps companies motivate sales staff by using AI to design, implement and administer better variable compensation strategies, with data and insights gathered and delivered in real time, says Nabeil Alazzam, Forma AI's CEO, who founded the company two years ago.

Variable compensation is the pay a sales team receives over and above salary, including things like bonuses and sales commissions. The formulas are typically set on a one-year basis, and company managers often spend many months, and rely on outside consultants, to produce them.

Forma AI seeks to change that. Its platform sits atop its customers' data and, using machine learning, automates the complex analysis needed to set variable compensation for each sales team member in a way that is "transparent and motivating," says Alazzam. And because it can adjust in real time, companies can refocus a sales team's efforts as business and market dynamics change. ●

► **SoapBox**, soapboxhq.com

► **Forma AI**, forma.ai



Nabeil Alazzam,
CEO, Forma AI



Matching number-crunchers

There's more to fintech than robo-advisors and personal finance apps—or, at least that's what Michael Kravshik hopes. The co-founder and CEO of **Luminari** is throwing his lot in with chartered professional accountants (CPAs), a group of more than 200,000 Canadian financial professionals that, he says, needs tools and services to help foster community and new job opportunities.

Luminari began in 2016 as a job-matching site, after Kravshik, a CPA who has also worked in counterterrorism and as the CFO of a technology company, realized that many accountants have experiences that don't always align with traditional jobs. So, he and co-founder Adam Bercovici developed an AI-enabled platform that could better match CPAs with hiring companies. "The entire approach to matching people with jobs is fundamentally flawed," he says. "We took a different approach with our algorithm."

In the past year, Luminari has expanded to become a community for CPAs, where accountants can also talk, receive notifications for in-person events, view industry articles and see volunteering opportunities. (Membership is free; companies pay for job postings.) It also recently launched a program called #Finitech to match CPAs with startups that need CFOs or COOs.

Lori McGurran, vice-president of operations at Jazzit, an Edmonton-based company that develops software to help CPAs create electronic documents, says any technology that can help accountants do their work more efficiently is welcome. Creating a community for CPAs (Luminari now has 11,000 members) and having professional development events is something the profession needs.

Kravshik says he's keen to provide more educational opportunities and help members use their skills in other settings. "We want to be the indispensable platform for CPAs," he says. "We'd like to help them to break the mould of traditional accounting and really embrace the flexibility of their designation." BY BRYAN BORZYKOWSKI

► **Luminari**, luminari.ai

Power to the purchasers

By JASON KIRBY

The long tail of disruption in the retail sector has now hit restaurants. What Amazon did to brick-and-mortar stores, food ordering apps are doing to dining establishments. Call-in orders and pick-ups are literally turning the tables on an industry already vulnerable to rising food and labour costs—impacting everything from interior design to food preparation processes in an effort to accommodate increased orders and deliveries.

Ritual has carved a lucrative niche for itself in this competitive field. Whereas most food app entrants focus on delivering meals to customers, it targets the lunch pick-up crowd. Ritual users place their order through the app with local participating restaurants—more than 3,000 of them in 10 cities across North America to date—pay in advance, and then skip the line to get their food. As Ritual CEO and co-founder Ray Reddy has noted, “It feels like it works everywhere, and that’s really what’s caused the success we’ve had today.”

Helping Ritual catch on is its Piggyback feature, which capitalizes on social networks that exist within workplaces. It lets a “team” of workers pool their orders, and then incentivizes one teammate to pick up the meals by giving them redeemable points. The company has processed more than five million orders to date, and investors have taken notice: In June, Ritual raised US\$70 million, in addition to US\$43.5 million raised in 2017.

Reddy believes on-site ordering will soon dwindle to 20 per cent—no surprise given that Ritual has been asked by chefs and developers alike to help redesign restaurants and food courts to adapt to the new food pick-up culture it’s helping to drive.

Whereas Ritual targets small but frequent purchases, other startups are helping retailers move big-ticket items such as appliances or cars. **Flexiti** is operating at the other end of the commerce spectrum, providing point-of-sale financing through its mobile application process. Customers can apply for financing in-store and online, and if approved, have immediate access to a private label credit card without any paperwork.



In June, Flexiti struck a deal with TD Financing Services Inc. to buy its Canadian private-label credit card portfolio for \$250 million. That transaction transformed the company into one of the largest private-label credit card issuers in the country, giving it access to more than one million credit card customers and bringing its total network of business locations to 3,500. The deal was backed by a \$350-million credit facility led by Credit Suisse AG, and a \$50-million equity investment by Globalive Capital.

TruRating is also targeting the point-of-sale process, but their objective is to give retailers immediate customer feedback. TruRating is integrated into a retailer’s payment-processing software and asks customers to rate things like customer service and value on a scale of zero to nine. Because of its simplicity, roughly 90 per cent of customers take the extra seconds to provide feedback.

Founded in the UK by former lawyer Georgina Nelson, TruRating opened its initial Canadian sales office at Ryerson’s DMZ four years ago. One Canadian grocery chain recently deployed the TruRating service on a pilot project, and a store manager quickly noticed dips in customer satisfaction at certain times of the day—when staff were changing for breaks. By making simple schedule adjustments, the location saw a big improvement in customer reviews. As Nelson has said, “[Real-time ratings are] such an easy way for consumers to have their say and be listened to, and for merchants to respond and improve.” ●

► **Ritual**, ritual.co

► **Flexiti**, flexitifinancial.com

► **TruRating**, trurating.com

Stopping epidemics dead in their tracks

Slowing the spread of epidemics means identifying outbreaks quickly. But in regions where doctors are rare and labs almost non-existent, the need for accessible, user-friendly molecular testing has posed a long-standing problem.

Enter James Mahoney, the entrepreneur behind **Advanced Theranostics**, a Hamilton, Ont. startup that has developed a working prototype to diagnose infectious diseases on the spot.

Using DNA amplification tech, Advanced Theranostics’ device can be programmed to detect specific pathogens responsible for various illnesses. The low-cost tool is smartphone-sized and disposable—users simply insert a patient swab into it, and then wait 20 minutes for an accurate diagnosis. The advantage: a simple saliva swipe is easier to get than a blood test, which makes this startup attractive to doctors working in remote regions.

Fast detection is crucial for the developing world, where benign illnesses like the flu and food poisoning kill millions of people every year.

Mahoney is a professor of pathology and molecular medicine at McMaster University and a clinical virologist at St. Joseph’s

Healthcare. He’s considered a pioneer in the field and has led research endeavours in collaboration with Harvard and Yale.

In the early days of molecular diagnostics, a diagnosis could take up to two weeks. Today, even in a big city like Toronto, it can take several days. Advanced Theranostics’ device shatters those timelines. No labs; no trials; no wasted resources.

And Advanced Theranostics is in rare company. “We’re entering a huge market,” Mahoney says. “None of the major in-vitro diagnostics companies is making a product quite like ours.”

The startup is currently refining its design for large-scale manufacturing. Then comes the approval processes for Canada, the US Food and Drug Administration and other international bodies. For Mahoney, the next two years will be rigorous, but the payoff is potentially extraordinary: “We’re doing this for the right reasons. And I’m glad the business world is paying attention.”

BY BARRY CHONG

► **Advanced Theranostics**, advancedtheranostics.com

No random sample

Most brands hand out samples, but few can say if they drive sales or go straight to the dump. Sampler changes that by bringing precision to the sampling game

By **MATT GURNEY**

Marie Chevrier found her passion while living in Montreal. But it wasn't the beauty of that old city, or its thriving culture, that inspired her. It was handing out samples..

While Chevrier spent her early professional career working in digital marketing and venture capital—an experience that taught her about startup culture—it was her first job that actually launched her career. As a teenager, she earned her pocket money by stopping passersby on busy Montreal streets, giving out free product samples for them to try.

And she took the job very, very seriously.

“The colleagues I was with were distributing two or three samples to the same people,” Chevrier says, “just to get rid of their inventory. But I was like, ‘No, you’re not getting two.’” She laughs, but her message was serious. “I understood that these samples cost money, and I was trying to educate people about the product. I was really passionate about it. I was a good brand ambassador!”

Those early experiences stayed with Chevrier. After graduating from university and spending time working in New York, she returned to Canada and founded **Sampler** in 2013. Still passionate about marketing and a believer in the power of samples, Chevrier wanted to bring technology and big data to what has traditionally been a low-info process.

She's done that. Today, Sampler works with more than 200 brands, or their agencies, based in 17 countries. It delivers thousands of samples a day, either directly to the consumers who sign up with the app, providing a biographic and demographic sketch, or by partnering with an existing publication or online community that has sampling operations, and then delivering samples to their consumers. In both cases, consumers receive boxes from Sampler at no charge, containing products targeted specifically to them.

It's a win-win for brands and consumers, Chevrier explains, because the brands are only sending their samples to consumers who might be interested, and the consumers aren't wasting their time receiving products they have no use for. This, too, is something rooted in Chevrier's earlier experience.

“Handing out samples was frustrating,” she explains. “I didn't know who these people were.” Either she'd be faced with giving samples to tourists, who wouldn't ever be able to buy the product in their home country, or she'd spend hours trying to hand out gender-specific

products like women's razors in areas frequented mostly by men. “We had nothing to offer them, and that wasn't helping the brand.”

Not only does Sampler eliminate that problem, but it also follows up with customers, asking for their feedback on the products they've tried.

Sampler's first campaigns were put together manually, a very tedious process involving Google forms and Excel spreadsheets. Chevrier would agree to distribute a product, ask for applicants online, and once she'd put a thousand names and addresses into her spreadsheet, she'd shut down the online link. Knowing there had to be an easier way to do it, she found someone to create an app. The business took off.

Sampler is by no means the only company making a grab for brands' existing marketing dollars, but it has an advantage—Chevrier isn't asking companies to spend any more money distributing samples, just to spend it more wisely. Using Sampler, not only do they reduce waste by properly targeting their chosen markets, they also get feedback in near-real time.

This was key for Diana Girard, founder of Beauty with Brains, a Toronto-based startup producing eco-friendly skincare products. With a limited marketing budget and an entirely e-commerce focus, Girard began opening sample pop-ups to build buzz.

She was disappointed. “How do I know they weren't all heading into a dumpster?” she asked. “How did I learn anything about my potential customers?” After a chance meeting with Chevrier, she paired with Sampler—and all of her samples were snapped up in four days. “I didn't think it would happen so fast,” she says. And how does she know they went to the right people? Within days of the campaign ending, she received her first analytics information.

Chevrier is just getting started. She's already partnered with big-name brands—Maxwell House, Kool-Aid, Garnier—and is on track for solid growth this year, especially considering that brands want the kind of micro-targeting and data-gathering that her company can offer.

Asked what she'd want her 17-year-old self, handing out razors on the streets of Montreal, to know about where her business is today, Chevrier laughs again. “This time, we know who the consumers are,” she says.

Indeed. And so do the brands. That's why Sampler works. ●



Sampler, *sampler.io*

*Marie Chevrier,
Founder and CEO*



Know your frenemies

Fintech startups are finding they have more to gain by complementing, rather than competing with, the big banks

By ROY KAO



\$627M

Amount invested in
Toronto fintech startups
by October 2018.

PITCHBOOK

\$2B

Amount of funds
under management
at Wealthsimple.

30%

Estimated reduction
in banking jobs due to
automation in next
decade.

FROST & SULLIVAN, 2017

2B

Number of people
globally who don't have
access to the formal
banking system.

WORLD BANK

33%

Average percentage of
consumers using fintech
apps globally.

EY FINTECH ADOPTION INDEX, 2017

27

Number of exits among
Toronto fintech startups
since January 2017.

PITCHBOOK

businesses. Depending on their risk profile, borrowers might pay a higher interest rate. But compared to the alternatives—credit cards, home equity or borrowing from family or friends—the fees are probably cheaper and definitely more palatable.

As a pioneer in Canada's non-traditional business lending market, one might expect Mitelman to scorn the big banks. But his message is very much the opposite. "The banks actually do a great job at what they do," he says. "But what they do only covers a certain part of the market." Things are so collegial that a significant portion of his company's business actually comes by referral from CIBC and other large institutions, which pass on applicants that the bank believes would be better served by an alternative lending model.

In this way, Thinking Capital is part of a larger trend in the world of fintech. While the relationship between small startups and legacy Bay Street institutions often is cast as a battle of David versus Goliath, the market needs both the nimble, innovative spirit of new fintech companies and the solid, well-tested foundation supplied by large institutions. Similarly, while fintech's initial emergence triggered warnings about massive, industry-leveling disruption in the manner of an Airbnb or Uber, so far that's proved misplaced.

What's more likely is seeing banks forge partnerships with promising fintechs. A leading exemplar in this category is **Wealthsimple**, an online Toronto-based investment advisor founded by CEO Michael Katchen in 2014. As with Thinking Capital, Wealthsimple's goal is to fill a market niche that the legacy business model doesn't always reach.

"A typical client for us is a younger professional, maybe mid-30s, who is just starting to build wealth," says Katchen. "The reason they might not like the traditional options is that the fees are higher. To get the fees down, most advisors require that you have some minimum to invest, maybe \$1 million—which few people have."

On average, Canadian investors pay high annual investment fees to their advisors—a total of 2.3 per cent according to industry statistics. Compounded over time, this can eat up a large portion of an investor's lifetime savings. At Wealthsimple, the fee is just 0.5 per cent (which goes down to 0.4 per cent for those who invest more than \$100,000).

How does Wealthsimple manage that reduction? In a word, says Katchen, "technology."

Unlike traditional investment advisors, Wealthsimple doesn't interact with clients through bricks-and-mortar offices. Nor does it provide the usual rituals of the investment-advisory industry, such as quarterly coffee meetings with clients to update them on their portfolio. The bulk of the relationship takes place through a phone app that takes seconds to download and install. "A lot of our clients are used to services such as Uber," he says. "They're used to this kind of interface. They prefer it to setting up meetings and going downtown every few months."

This is also the sweet spot where several established banks and other financial-services companies have zeroed in to strike partnerships—turning

Imagine two small, single-owner businesses looking to borrow \$50,000 from a large Canadian bank. The first is an old-school retailer in a high-cost urban mall. The second, a web-based distributor with exclusive rights to sell a popular, newly invented product. Which business would have an easier time accessing credit?

The answer is not as obvious as it may seem. That's because, historically, access to credit often has had little to do with a business' expected profitability—and everything to do with who signs the application. "If a business owner has good personal credit, he or she usually won't have trouble getting a loan for their business," says Jeff Mitelman, the Montreal-based CEO of alternative lending service **Thinking Capital**.

While that approach works for the banks, it leaves out many promising small businesses. Enter Thinking Capital.

"We look beyond the concept of credit-worthiness," Mitelman says. "We come in and look at the core component of the business, not just the history of the owner."

There are other differences, too. Mitelman and his colleagues require loan applicants to permit the sharing of some business data. This allows Thinking Capital to apply AI-powered algorithms that help benchmark the applicant against other, similarly situated small



Staff at work in the Toronto offices of Wealthsimple, an online investment advisor platform.

to Wealthsimple to automate their own operations, leveraging the startup's more agile, tech-savvy operating style. "The big companies could build this software themselves, but it's hard, it requires expertise they might not have, and it takes them a long time," Katchen says. "Even something as basic as a banking website can be a challenge for these large companies. Someone in the bank has an idea for a new service on the website. That becomes a proposal, which takes six months to get approval, then a consulting company comes in to identify the market, there are customer interviews, then another firm comes in to build it, and even then, you have to slot it into a new product launch that only comes every six months. So instead, they work with us and it can go much faster."

Like Mitelman, Katchen is quick to emphasize that his company isn't so much setting out to replace established players as complement them in targeted markets. The higher fees traditional investment advisors charge might be fair "if you're a more established client who relied on the advisor's expertise in tax planning, estate planning, retirement planning and all sorts of other complex topics," he says. "But you need to be transparent about what people get for their money."

This same trend is also evident in the credit-card industry, which has been dominated for decades by a powerful oligopoly. Take the example of **KOHO**. Just a year after launch, the Vancouver-based company had approximately 30,000 users relying on its financial services to manage their money and make credit-card purchases.

As with much of the retail fintech market, there is



“
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**Michael Katchen,
CEO, Wealthsimple**



a focus on younger adults whose needs are relatively straightforward, and who are comfortable with managing their financial services through a mobile interface. According to KOHO's Toronto-based co-founder and CEO, Daniel Eberhard, the average KOHO user will pay only about \$10 per year in fees, less than a tenth of what a typical Canadian pays in bank fees.

Along with the cost savings, KOHO employs "behavioural finance" to appeal to customers. This includes automated cues that help clients reach their financial goals through prods and prompts. "The psychology of savings has been proven to be really hard," he says. "So, we have ways to help. When you make purchases, you can do round-ups to the nearest one dollar, five dollars or 10 dollars, with the rounded-up amount going to savings. KOHO also figures out how much money you need every day—and then you're shown how much extra you have to spend."

But as Eberhard is quick to point out, KOHO isn't a bank. The innovation it exemplifies—just like that of Wealthsimple and Thinking Capital—is in finding a balance between competition and collaboration that ultimately provides more options for its customers.

"Everything that touches the consumer, we build and manage and control ourselves," he says. "But the 'boring' part of banking—how money is moved—that's done by our processor, [Peoples Trust]. We liked the stability of the Canadian banking system, but we wanted to give people a better customer experience." ●

- ▶ **Thinking Capital**, thinkingcapital.ca
- ▶ **Wealthsimple**, wealthsimple.com
- ▶ **KOHO**, koho.ca



The fine art of the humble brag

The DMZ helps tech startups grow by developing a proudly Canadian sales culture

By **DAPHNE GORDON**

To thrive in a competitive global marketplace, Toronto-based startups must embrace the humble brag, says Abdullah Snobar, executive director of the DMZ, a world-leading, not-for-profit tech accelerator in downtown Toronto.

"Sales is the biggest segue to success," he explains. "It's going to help make a start-up a global enterprise down the road."

But the sales pitch often doesn't come naturally to tech startup founders, many of whom got into the game because they saw a consumer problem and had the know-how to build a technological solution.

"If you look at Canadian culture, we're not known to be assertive," he says. "So for entrepreneurs, it's about embracing the humble brag. Not being arrogant, but being proud of what you've been able to accomplish."

That's why the DMZ launched a sales accelerator in 2016. Designed to help tech businesses become global enterprises, it helps companies grow from startup to scale-up.

Capital follows sales

The program focuses on developing an aggressive sales method, building a sales-oriented team, providing marketing support and equipping founders with the leadership skills they need to create global impact.

Throughout a four-month period, world-class mentors assess a startup's needs and customize a growth strategy that encompasses all aspects of the business.

The capacity to create revenue is what

startups need now, says Snobar. The program helps founders realize that capital follows sales.

"For us, this is a new narrative," he says. "Toronto has been in an episode where we've been helping a lot of early-stage companies come to life, become market ready...Now they need to acquire customers that can get them to scale."

The DMZ ranked #1 in the world

Located at Yonge and Dundas Square, the DMZ at Ryerson University was ranked as the top university-based incubator worldwide by UBI Global in 2018.

It's home to as many as 70 startup companies at any given time, providing open-concept spaces on six floors of an office tower that looks out over the square.

Each quarter, six startups are accepted into the sales program. They relocate their teams to set up shop in an environment that's meant to create a sales mindset—complete with a gong to bang when a deal gets made.

Starting in 2019, the accelerator is expected to expand significantly, quadrupling the size of the quarterly cohorts.

Mentorship makes a difference

The DMZ's sales program helped Casalova, an online real estate marketplace that streamlines the process of buying or renting a home, scale up in 2017.

The company now boasts a downtown headquarters and a staff that includes a team of independent sales agents. Thanks to a \$2.5-million investment from Aviva Ventures, a U.K.-based fund, Casa-

lova is on track for more growth in 2019.

"Our business wouldn't be where it is today without the DMZ," says Ray Jaff, Casalova co-founder and CEO, pointing to the accelerator's community of startups, accountability structures and introductions to investors as factors in the company's success.

But what really helped Casalova crack the code of scaling was mentorship from the DMZ's coaches, who were embedded in the business and helped the company refine day-to-day practices as well as leap large hurdles.

"It was helpful to have access to people who had been there, done that," says Jaff. "I knew I could try to learn on my own, through trial and error, or I could have a 30-minute sit-down and save months and thousands of dollars in lost time."

Exposure to a global marketplace

Participants in the accelerator program attend events with founders from across the region and intimate workshops with industry leaders. They also go on a two-week, multi-city road trip to key global markets such as New York and San Francisco for curated, one-on-one meetings with customers and investors.

The overarching goal is to create a competitive sales mindset so startups can reach their full potential. If they're acquired, they can earn what they deserve.

"The mindset has changed," says Snobar. "Whereas before it was a major milestone to be acquired for a million dollars, now the stakes are higher. Now we're saying: Let's become a sales behemoth." ●



STAFF EMPOWERMENT

Digital hands make brighter work

By JOHN LORINC

In the two years since **Zoom.ai** launched its AI-driven automated assistant, a chat-based application that integrates with enterprise systems like Microsoft Office 365 and Google G Suite, the Toronto start-up has tapped into a promising seam of demand. The users are busy professionals who would otherwise have little choice but to hive off growing chunks of their work day to manage the torrent of logistical minutiae once handled by support staff, says founder and CEO Roy Pereira.

The workflow problem isn't exactly new, but previous software solutions didn't help and sometimes added another layer of busy-work. Zoom's solution, which gives every company employee their own "personal assistant," relies on machine learning algorithms that adapt to the user's individual requirements. "The singular interface is a

powerful benefit," says Pereira. He claims that Zoom.ai can free up 15 hours a month for a typical user by automating things like scheduling meetings, generating documents and transcribing calls.

Zoom's application falls within a broader tech niche focused on developing fresh ways to empower different employee cohorts, from large rosters of front-line hourly workers to highly skilled professionals responsible for complex client relationships. What's clear in this sector, as well, is that firms like Zoom are reaching for evolving technologies—especially machine learning—to design products that confront the shortcomings of earlier solutions.

Employee learning is a case in point. While webinars and online learning modules have become ubiquitous for both on-boarding and continuous training processes, the

experience is often unsatisfying, costly and fails to generate meaningful feedback about whether participants have retained the information, says Carol Leaman, founder and CEO of **Axonify**, a 170-employee firm in Waterloo that has pioneered the concept of a "micro-learning platform."

The company's approach has been to break down learning into small, digestible bites with a strong emphasis on personalization and engagement, for example, by gamifying the modules. It also can precisely track the results. "Everything is measured and used to optimize the learning experience to drive memory and behaviour change," she says.

Axonify's platform, Leaman notes, is popular in the retail and hospitality sectors, and at firms with thousands of hourly employees in multiple locations, where HR teams must contend with high turnover rates. But she says the company has also signed on pharmaceutical firms with far-flung networks of sales people who must constantly replenish their product knowledge. In both environments, time and limited resources militate against effective training. "The way we train people leads to rapid knowledge retention."

Nudge.ai is a third company also focused on using emerging technology to strengthen customer relationships—in this case with a platform that relies on a machine learning system to enrich the client information available to professionals such as wealth advisors. Unlike more traditional customer relationship management products, says co-founder and CEO Paul Teshima, Nudge's "topical modeling" platform is designed to adapt, prompting advisors to constantly adjust their client outreach and automatically populate profiles with new information.

With newer clients, for example, Nudge will recommend frequent interactions, but as existing accounts become more established, the system learns to pull back. Teshima says the platform's AI algorithms also search for new information relevant to a client's holdings.

Some clients have also used Nudge's built-in analytics for internal tasks, such as analyzing otherwise invisible social networks within a company's sales force to identify "collaboration dynamics," says Teshima. "We can see the relationship strength between individuals in the company," he says. "This is something our customers have been asking for." ●

- ▶ **Zoom.ai**, zoom.ai
- ▶ **Axonify**, axonify.com
- ▶ **Nudge.ai**, nudge.ai

Technology changes the conversation

By MAI NGUYEN

Talking openly about mental health has increasingly moved out of the shadows thanks to major education campaigns, but there's still a way to go, especially among teens who are learning to find their voice.

Enter Toronto-based **emojiHEALTH**, a startup founded by two whiz-kid 17-year-olds, Alexandra Philp-Reeves and Anna Melnyk, that aims to nudge teens into talking more openly about mental health through AI-enabled chatbots using emojis and casual conversation.

Launched in 2016—first on Facebook Messenger, then Kik—to immediate acclaim, emojiHEALTH evolved rapidly as a conversational AI product that offers traditional health payers a new way to reach teens. The bot nudges users to periodically engage in subjects they might not be comfortable discussing with others. For example, they might get a text like, “Do you remember when Lili Reinhart [aka Betty Cooper] opened up about her panic attacks on *Riverdale*?” Next, they're prompted to click a button, which generates snackable,



doctor-approved content on related topics, in this case, panic and anxiety. emojiHEALTH now has around 80,000 users, with an 80 per cent engagement rate.

Philp-Reeves' father Dr. John Reeves was an early mentor, then joined the company as chief medical officer in 2017. He helped form **conversationHEALTH**, a parent company that, along with emojiHEALTH, develops custom chatbots for hospitals and pharmaceutical companies. “Teens have a massive fear of judgment when it comes to mental health,” says Dr. Reeves. “They prefer to have conversations with bots rather than humans because they feel they're not being judged.”

Improving mental well-being through technology is a philosophy that's shared by **InteraXon**, a Toronto company that has developed a wearable brain-sensing headband called Muse to help people meditate. When the thin headband is placed over the forehead, calibrated sensors measure voltage fluctuations at the scalp. It sends the information to a



smartphone or tablet in real time, and depending on the state of the brain, different ambient noises will start to play. Consistency is key to mastering meditation, so Muse is also gamified with points, challenges and bonuses.

InteraXon has raised \$28.8 million since it was founded in 2007 and, in the last three years, sales are up 75%.

“Learning meditation through real-time feedback on the mind helps people increase their resilience and focus,” says Graeme Moffat, the company's chief scientist and VP of regulatory affairs. “And those skills have real impacts on mental health.” ●

► **emojiHEALTH**, emojihealth.com

► **conversationHEALTH**, conversationhealth.com

► **InteraXon**, choosemuse.com

Better credit

Like many fintechs, **Borrowell Inc.** was born out of a desire to make banking better for consumers. But it took a couple of tries with different products before cofounders Andrew Graham, a former director at President's Choice Financial, and Eva Wong, a business development specialist, found the right hook.

Graham had seen firsthand people carrying large balances on their credit cards without realizing how it could hurt their credit rating. So, Borrowell began in 2014 by offering low-cost loans online. It still does that, but the duo hit it big once they also began offering free credit reports. They now have 700,000 users and sign up 2,000 more credit-curious Canadians every day, says Graham, Borrowell's CEO (Wong is chief operating officer).

While the business also makes recommendations, based on one's credit score, for things like fixed-rate loans, credit cards and mortgage rates, it's the score-checking itself that's key. “The most important thing we do is provide a better picture of one's credit situation,” says Graham. “We provide broader context and education:



Eva Wong,
CEO, Borrowell Inc.

What does it mean if my score is 700? What would I be able to do if my score was higher? People need that context.”

Borrowell has benefitted by partnering with established brands, such as Equifax and CIBC, says Carmi Levy, a London, Ont. technology analyst. Offering credit reports also creates a path for growth. It's an easy first step for consumers; once they're in, Borrowell can offer them other products. “They're

opening the door to building a customized relationship with customers,” says Levy.

Graham is mum on specifics, but more features are on the way. “We can create scale because of artificial intelligence and data, and that's exciting,” he says. “We want to help people at all stages of the credit journey.” BY BRYAN BORZYKOWSKI

► **Borrowell**, borrowell.com



BioConnect, bioconnect.com

*Rob Douglas,
Founder, Chairman and CEO*

Unmistaken identity

Rob Douglas wants to rid your life of passwords and passcards and replace it all with the real you. For security and simplicity, he says, biometrics can't be beat

By **TIM FALCONER**

Rob Douglas places four items on the boardroom table in his company's office. They are a credit card, a driver's licence, a key chain with two fobs and an RSA token, which generates passwords for two-factor identification.

"Are any of these me?" he asks. He picks up his Visa. "This one has my name on it." Then he grabs his licence. "This one has information about when I was born and where I live." The fobs, for entering his building, and the RSA token, for transferring money, contain numbers assigned to him.

Each of these everyday authentication tools represents a small part of Douglas' identity. Yet despite their widespread use, they aren't secure because they can easily be used by someone else. In their place, as founder, chairman and CEO of Toronto-based **BioConnect**, Douglas is convinced biometrics—the use of physical or behavioural characteristics such as fingerprints and irises for identification—is a better way to ensure the right people get access and the wrong people don't. Biometrics, he says, are "the last inch between technology and the human."

After Apple introduced easy-to-use Touch ID fingerprint recognition on its iPhone in 2013, biometrics suddenly became commonplace. BioConnect's technology uses fingerprint, voice, eye or face recognition to allow digital access to systems or physical access to buildings and other properties. "Security systems are only effective relative to their convenience," says BioConnect's chief information and security officer Courtney Gibson. "If Visa called you on every transaction and said, 'Could you please verify that you're buying lunch?' you'd find another credit card. It would be extremely secure but absolutely impractical." The right balance depends on screening people to the appropriate level for what they're doing. Employees approaching a low-risk door may find it unlocked because the system recognizes them, while those entering restricted areas might need to provide more than one biometric.

Financial services and data centres are the company's dominant customers, but others range from EMS vehicles that want to control access to drugs, to sports teams protecting their athletes in arenas and stadiums. Douglas also sees great potential in health, education and even online voting.

UFC, the Las Vegas-based mixed martial arts organization, uses BioConnect's platform to give over 300 people access to its 190,000-square-foot

facility. Senior director of executive security and facilities Bryan Peterson says the system is more secure and more convenient because it means no more lost or forgotten access cards. "You always have your fingerprint," he says, "so it's one less thing to worry about."

From its 2010 start in Douglas's Oakville, Ont. basement, BioConnect has grown without venture capital or private equity—he likes to say it's been "funded by 11 people and a dog"—and now operates out of Toronto's Liberty Village with 900 customers in over 20 countries. He expects the number of employees to climb from 65 to around 200 in two years. To maintain its culture, vice-president of people and culture Christine Song says BioConnect looks to hire entrepreneurs and then help them realize their potential. The monthly all-hands meeting also plays a valuable role. For 90 minutes, staff discuss what's new, what's coming up and challenges such as how to handle increased call volumes. "The only way we're going to solve problems is together," says Song.

The goal, says Douglas, is to build the world's leading identity utility. To make the point, he reaches for a light switch and, as he flicks the lights off and on, says, "This user experience is incredibly simple." We now take electricity for granted but the technology required to generate power, distribute it, make it available on demand and then send a bill is complex. "When we think about the future, we think about this idea of the light switch," he says. "We're the platform behind managing all that complexity."

Most of the companies in BioConnect's market segment, which is worth \$11 billion, still sell old technology such as cards and fobs, and the few next-generation ones are still young, so Douglas isn't worried about competition yet. "It's like a land grab," he says. "It's about how quickly you can expand the market." Peter O'Neill, president of Toronto-based FindBiometrics, has been covering the industry for 19 years. He says BioConnect's future is "very rosy" because it has flexible technology that's easy to adopt and use, as well as experience in the marketplace.

As the limitations of passwords—inconvenient and easily hackable—become increasingly apparent, BioConnect makes the human the credential. "We don't use any of this," Douglas says, scooping the items on the table into his hand. "That's all gone. I become the RSA token, I become the key fob, I become these cards. I am actually these things. I am me." ●

Savvy software for the smart grid

By NAOMI BUCK

For the better part of a century, the power grid operated according to a basic principle: electricity generated at large centres was pushed down wires to areas requiring power, in a one-way, centralized system managed by large, usually state-owned utilities.

In the last decade, every element of that equation has started to change. New technologies and markets are enabling consumers to become producers (or “prosumers,” in industry jargon), power flow has become two-way and once-centralized systems are becoming distributive—incorporating smaller units of energy generation and storage that operate parallel to the main utility. Advances in storage, solar and wind technologies have allowed for a higher integration of these intermittent energy sources. And the utility technician, once a human being, is being replaced by software that can “run” the grid—managing voltage and frequency and matching demand and supply in real time.

Overwhelmed? You’re not alone. The number of distributed energy technologies coming

to market is a challenge even for utility companies which aren’t used to rapid change, says Chris Caners, an independent energy consultant based in Toronto. “They need help.”

This is where a company like **Opus One Solutions** comes in. Established in 2011 by CEO Joshua Wong, who previously led Toronto Hydro’s smart grid department, Opus One began as an advisor to governments and utilities embarking on grid transformation. Meanwhile, a small team of employees went to work behind the scenes developing software on “advanced grid analytics” for what Wong and others believed to be the grid’s future: a transactive energy market. The vision is to have a variety of energy “actors”—power plants, solar panels, batteries, smart thermostats—telling each other how much energy they need and what they’re willing to pay for it.

“The electron highway is transforming itself into an advanced analytics-driven data platform,” says Wong. “It’s a marketplace of new business models for the utility and the prosumer and it’s moving us toward 100 per cent clean energy.”

Opus One’s GridOS software was first field-tested in 2015. This year, it launched the world’s first transactive energy market at a medical campus in upstate New York. Local energy producers on the campus—known as distributed energy resources (DERs)—are connected to the grid and set up to feed into it according to real-time supply and demand levels, while also considering the value of given energy supplies at given times. The company is also applying its technology to a large microgrid project in Nova Scotia (microgrids are self-contained energy systems that may or may not be linked to a larger grid) that is to be completed next year.

Opus One has attracted global investors Energy Impact Partners, ENGIE and Renewal Funds, and now employs over 70 people at offices in Toronto, Richmond Hill, New York and Boston. While currently focused on the North American market, it is planning an international expansion in 2019. ●

► **Opus One Solutions**, opusonesolutions.com



Enabling AI at the edge

By JONATHAN WOODS

Karim Ali's timing couldn't have been better. In 2012, the founder and CEO of Toronto-based **Invision AI** was a research fellow in the artificial intelligence lab at UC Berkeley. That same year, deep learning algorithms achieved breakthroughs in accuracy that kicked off AI's shift toward real-world applications.

"It got to the point where [AI] was accurate enough to be of practical use," Ali says. "One of the issues though—and there lay the opportunity—people were getting this accuracy by using a lot of computational power."

That recognition planted the seed that, in 2017, became Invision AI. The amped-up computing power required for deep learning is typically delivered with expensive graphic processor units or cloud-based computing services. Ali's goal was to lower that cost by enabling deep learning networks to run on Internet-of-Things (IoT) devices using only the computing power of a device's off-the-shelf factory processor.

This proposition combines deep learning and edge computing, an equally hot topic in industrial technology. Deep learning runs on layers of artificial neural networks designed to independently learn through repeated recognition of patterns in data, promising faster and more accurate insights for business. Edge computing refers to the embedding of data-processing capabilities within industrial sensors and devices, enabling them to perform computations locally. Ali's idea of achieving the performance of deep learning with the relatively inexpensive hardware inside connected devices is enticing.

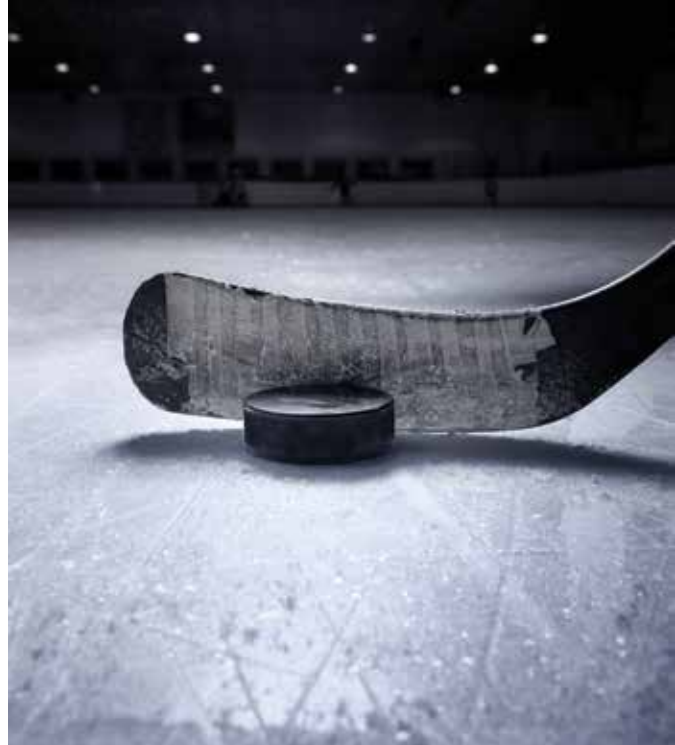
Invision AI has started to validate some of its technology. One demonstration came in a proof-of-concept project commissioned by the Ontario Ministry of Transportation in early 2018. Invision AI built a camera system that used a deep learning algorithm to determine the number of people inside a vehicle in motion in real time. Ali says, "We were able to get high 90s [per cent] accuracy with that."

Other projects include collision-avoidance systems and enhanced motion cameras with object detection and classification capabilities. But these use cases are only a teaser of the company's ambitions to own the intersection of AI and IoT. Ultimately, Ali says, "We want to be the operating system for edge AI." ●

► **Invision AI**, invision.ai



Karim Ali (Right)
Founder and CEO, Invision AI



A big-data power play

Hockey stats once meant goals, assists and plus-minus ratings. But analytics recently invaded the game, giving coaches and fans alike new stats to consider such as Corsi, Fenwick and PDO.

This shift has put a new premium on the underlying data and created a market for a company like **Stathletes**. Based in St. Catharines, Ont., its hockey stats and analysis are must-haves for people who work in the sport.

"There's an endless amount of statistics and math you can apply to this type of data," says co-founder Meghan Chayka. "It just depends on the expertise of the people using it and what type of question they're answering."

In 2010, her brother John Chayka wanted to use data in his own hockey school, so he asked Meghan and her now-husband Neil Lane, Stathletes' CEO, for help with statistics software. The result was Stathletes.

John left the business in 2015 and a year later became general manager of the NHL's Arizona Coyotes. But Stathletes took the puck and kept going. Today, it counts leagues, teams at all levels (including NHL), players and agents among its clients and has 64 employees, half of them part-time.

Stathletes tracks every NHL game and gathers info from more than 20 other leagues worldwide. Proprietary collection software generates more data in more detail than the leagues themselves collect. Clients can further customize that information to do everything from evaluating players' aging curves to figuring out why a team gives up two-goal leads.

Wes Wolfe, an assistant coach with the Ontario Hockey League's Erie Otters, a Stathletes client, says analytics provide an objective perspective. "Data makes it clearer what's really happening as opposed to relying on your inherent biases or opinion," he says.

Meghan, named a Yahoo Sports Unsung Hero in 2015, says the analytics boom has been good for Stathletes and for the game. "It's more competitive and dynamic and will only get better."

BY TIM FALCONER

► **Stathletes**, stathletes.com

Medical tech with a human touch

By GERRY FLAHIVE

In recent years, there's been an explosion of software and healthcare tools that fall under the category of 'patient management' systems, but the term doesn't always do justice to its most human outcome: patient *empowerment*.

Two Toronto companies are pushing innovation in patient care well beyond institutional walls, and into the hands of patients seeking a greater role in their recovery. In the process, they're empowering people and practitioners to improve health with the aid of digital tools.

Courtney Cole, founder and CEO of **ForaHealthyMe Inc.**, is "motivated by the strength and courage of patients everywhere." ForaHealthyMe promotes 'virtual rehabilitation' using video links for online education and consultations. It prescribes exercises using "interactive & intuitive 3D avatars" so that patients living far from their hospital have at-home access to leading-edge solutions.

Michael Millar, founder and CEO of **Verto Inc.**, takes patients beyond the post-operation stage and involves them in a "healthcare journey" using a system that "follows them from

diagnosis to recovery." Its software system, RightPath, increases productivity for healthcare professionals, while making their interactions with patients more meaningful.

Both companies have embraced—and refined—some of the newest tech, from machine learning to motion capture.

ForaHealthyMe's software and analytics engine captures video and infrared recordings of a patient's movements after a knee replacement, for example. The motion-tracking technology gives healthcare providers the ability to analyze the resultant data streams, and prescribe more precise and effective rehabilitative options. "It delivers a unique combination of computer-vision technology, telehealth, analytics and patient/provider virtual care solutions," says Cole.

Verto's RightPath is a platform built to work with the reams of data generated through patient care, from formal test results to informal but relevant text messages, much of which can end up siloed. "One of the big problems we see in healthcare is that most of the systems are

all about aggregating data," says Millar. RightPath sits on top of traditional healthcare systems and data, and includes information about who is in the circle of care. "Dumping health data into a web portal isn't good enough. RightPath uses each person's health data to drive personalized, rich, timely delivery of contextual education and resources."

ForaHealthyMe is now working on building commercial partnerships in Europe and Asia, embracing the different approaches to delivering healthcare services and payment models in those markets.

Launched in 2009, Verto has since expanded to 15 staff focusing on RightPath. It's won two competitions this year (including a MaRS Innovation Partnership: Procurement by Co-Design award), signed deals with five hospital networks representing twenty hospitals, and is making a push into the U.S. market.

Technology with a human touch is winning. ●

► **ForaHealthyMe Inc.**, forahealthyme.com

► **Verto Inc.**, verto.ca

Carbon-neutral coal? It's real

As a graduate engineering student in Toronto in 2010, Andrew White had cleantech on the brain. In particular, he wanted to develop a product to filter out hydrogen sulfide from the natural gas generated in biogas plants and other similar operations, and in the process, produce purer methane that could be burnt to generate electricity or upgraded and added to the natural gas grid. As an added bonus, he thought, the residue could be used as a fertilizer.

To develop it, he created **Char Technologies Ltd.**, and called his product SulfaChar.

"Finding lead users who trusted the data and technology enough was a bigger challenge than any of the funding," says White. Char cleared that hurdle in 2013, when it secured its first pilot project at a Grober Group farm near Cambridge, Ont. Once companies started using SulfaChar, private money was much easier to get. "Paying customers are the best market validation you can ask for."

White's ambitions went beyond one product, however. While developing SulfaChar, he decided to tackle an even bigger cleantech challenge—greenhouse gas emissions from coal. Using the same processing equipment, he created a carbon-neutral coal replacement, called CleanFyre, which heavy industries can use in their blast furnaces without retrofitting or loss of performance. This year, steel producer ArcelorMittal Dofasco agreed to be part of a 20-tonne trial.

To boost Char's capacity, White took the company public in 2016. Earlier this year, using cash and shares, it bought Altech Group, a local firm with technology that complements SulfaChar, and engineering



Andrew White,
CEO, Char Technologies Ltd.

and consulting expertise in clean air and clean water. Toronto-based Char, which White started from his parents' kitchen table, now has customers in Ontario, the U.S., China, Chile and Brazil. It also has 20 employees and revenues of \$20 million.

And while the political will to tackle environment issues ebbs and flows, White is optimistic about Char's prospects. "Private industries are pursuing greenhouse gas reduction with or without policy," he says. "Cleantech is definitely a growth area." BY BRYAN BORZYKOWSKI

► **Char Technologies Ltd.**, chartechnologies.com

Harnessing the power of artificial intelligence

How NEXT Canada is helping businesses commercialize the machine-learning revolution

By **DAPHNE GORDON**

Artificial intelligence is about to disrupt everything. And Canada will benefit if businesses can learn how to adopt the technologies, says the leader of a founder-development incubator for Canada's next generation of entrepreneurs.

"It's a challenge for every industry," says Sheldon Levy, CEO of NEXT Canada, explaining that while Canada is already known as a research hotspot on the subject of machine learning, adoption of artificial intelligence technologies by the business world is a crucial next step.

Transformation is coming

It's crucial because Levy describes the transformation that is coming due to artificial intelligence as similar in scope to that of the Internet.

"It will affect everything," he says, "and businesses using AI will begin to dominate the economy."

That's why NEXT Canada launched NextAI, an accelerator program designed to help entrepreneurs who are applying AI technologies in their businesses.

It's the organization's third program devoted to helping high-potential entrepreneurs to succeed, with hundreds of founders benefitting from NextAI, Next 36 and Next Founders since the non-profit was founded in 2010 by a group of business leaders and academics.

NextAI accepted its first cohort in early 2017 and 40 companies have since completed the eight-month program. It includes seed funding of up to \$200,000, office space in Toronto or Montreal, and hands-on technical and business instruction from industry professionals and award-winning faculty from top universities.

The incubator brings talent and entrepreneurs together with academic, corporate and government partners, all with the goal of positioning Canada as a leader in the global race to establish centres of excellence in the commercial application of AI.

With almost a third of the AI ventures devoted to healthcare, Levy has said that one of NEXT Canada's bigger goals is to foster innovation in the Canadian healthcare system.

The program accepts hundreds of applications from around the world each year. As a designated entity under the Startup Visa Program, NEXT Canada can assist international participants in getting a fast-tracked visa. It allows them to work in Canada for the duration of the program and speeds up the path to permanent residency.

NextAI helped startup founder Nargiz Mammadova get her AI-enabled product to market. When she entered the program in February of 2018, her idea was to help potential immigrants to Canada, allowing them to converse online with an intelligent chatbot that could streamline the legal process of coming here.

"I understood, as an immigrant, that the process of coming here can be complicated," says Mammadova, who came to Canada from Azerbaijan. "And I knew I was not the only one. Immigration is a hard challenge."

Destin.ai launched in September and now has about 5,000 active users. The bot answers questions, assesses the eligibility of applicants and connects users with immigration lawyers.



NextAI alumna, Nargiz Mammadova, demonstrates the Destin.ai platform to guests at NEXT Canada's Venture Day in September, 2018.

Educating businesses about AI

NEXT Canada is also developing a tailored education program, set to launch in 2019, that will help established companies harness the AI solutions that startups create.

"We're putting in place an exciting program that works with partners on hands-on adoption, helping companies understand the opportunity and challenges posed by AI," says Levy. "It means reimagining the business with data at the heart of it."

Educating stakeholders is part of the path to growth for AI-enabled startups, agrees Mammadova. She assures immigration lawyers and consultants, who can use her platform to find clients, that Destin.ai is not designed to replace them.

"The key is explaining what you're doing, why it has value and how it can be impactful," said Mammadova. "It's not that AI will

replace you. It's more about how our tool can help you."

Creating prosperity for Canadians

If the AI program follows in the footsteps of NEXT's other programs, entrepreneurial success stories are on the horizon. One graduate of Next 36, Emilie Cushman, credits the program for helping her startup become a global enterprise.

With more than 30 staff in Toronto and offices around the world, Kira Talent provides holistic admissions services for higher education, allowing schools to assess candidates for traits like leadership, critical thinking and communication.

"I never pictured myself owning a business," says Cushman, an alumni rep on the NEXT board. She'd planned on entering politics after completing her undergrad degree in 2012. "It opened my eyes to a whole new world. The NEXT mission is Canadian prosperity, and I think that's what we're achieving." ●

An aerial, black and white photograph of a city skyline, featuring the CN Tower and numerous skyscrapers. A blue arc graphic curves across the bottom of the image.

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