

# THE UNIVERSITY FOR NEW BRUNSWICK...AND THE WORLD

"THE UNIVERSITY OF NEW BRUNSWICK IS DEEPLY WOVEN INTO THE FABRIC OF THE PROVINCE THAT SURROUNDS US. IN MANY WAYS, WE ARE THE UNIVERSITY FOR NEW BRUNSWICK. THE WORK BY OUR FACULTY AND STAFF INFORMS AND BUILDS COMMUNITIES. WE MAXIMIZE THE HUMAN AND ECONOMIC POTENTIAL OF OUR PROVINCE. READ ON, AND YOU WILL DISCOVER THE DIFFERENCE WE MAKE — NOT JUST IN OUR PROVINCE BUT ACROSS CANADA AND AROUND THE WORLD."



# MAKING A DIFFERENCE AT HOME AND ABROAD

AS THE LARGEST UNIVERSITY IN THE PROVINCE, THE UNIVERSITY OF NEW BRUNSWICK IS A STRONG CONTRIBUTOR TO NEW BRUNSWICK'S GROSS DOMESTIC PRODUCT. WE ARE CRITICAL INFRASTRUCTURE FOR THE KNOWLEDGE ECONOMY AND A LEADING PLAYER IN THE INNOVATION ECOSYSTEM. AS AN INCUBATOR OF AN INCREASING NUMBER OF HIGHLY SUCCESSFUL STARTUP FIRMS, WE SEED FUTURE ECONOMIC GROWTH. AS A MAGNET FOR INTERNATIONAL STUDENTS, UNB IS A NOTABLE EXPORTER OF HIGHER LEARNING.

More than
\$300 million
in direct spending feeds the
NEW BRUNSWICK
economy every year.

More than 3,250
PEOPLE work at UNB,
making it one of the
LARGEST EMPLOYERS
in the province.

Our ANNUAL EMPLOYEE PAYROLL amounts to \$188.8 MILLION.

Within the last decade,
5,038
INTERNATIONAL
STUDENTS
have graduated from UNB.



#### PURPOSE

VISION

Our purpose is to seek and advance knowledge.

Our vision is to be the university of choice for passionate minds.

#### **OUR MISSION**

Our mission is to create the premier university environment for our students, faculty and staff in which to learn, work and live. We will provide an exceptional and transformative education for our students, by encouraging initiative and innovation, unlocking their creative potential. Our graduates will be prepared to make a significant difference — creating opportunities for themselves and for others. We commit to understanding and solving the problems of today and tomorrow, serving our community and engaging with our alumni, retirees and partners around the world.





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SALUTED AS THE **NATION'S** 

NO.

ENTREPRENEURIAL
UNIVERSITY

BY STARTUP CANADA.

RECOGNIZED IN THE GLOBE AND MAIL AS ONE OF



LIKE THE PEOPLE WHO
LIVE IN NEW BRUNSWICK,
UNB TENDS TOWARDS
MARITIME MODESTY ABOUT
OUR ACCOMPLISHMENTS.
BUT WE ARE JUSTIFIABLY
PROUD OF THE SUCCESSES
THAT COME FROM THE HARD
WORK AND DETERMINATION
EXHIBITED BY OUR PEOPLE.

RESPONSIBLE FOR ABOUT

75%

OF ALL PUBLICLY FUNDED RESEARCH IN NEW BRUNSWICK.

THERE IS NO SHELTER FROM DIFFICULT ECONOMIC TIMES. LIKE OTHER
UNIVERSITIES, UNB NAVIGATES A TOUGH PATH OF FINANCIAL
SUSTAINABILITY. BUT WE FIND OUR WAY, TRIMMING EXPENSES
WHILE SAFEGUARDING QUALITY. WITH THE FORESIGHT OF DISCIPLINED
FISCAL PLANNING AND RESTRAINT, OUR FOUNDATION REMAINS STRONG.
THE GENEROSITY OF DONORS STRENGTHENS OUR MISSION AND ENSURES
FINANCIAL SUPPORT FOR STUDENTS.

<1%

Less than one per cent of UNB's total budget is allotted to executive salaries.

\$25.5 MILLION

Over the last nine years, \$25.5 million has been trimmed from UNB's overall budget.



**UNB** administrative and general expenses accounted for 9.5 per cent of our total operating expense, placing it below the broader Canadian university average.

Through our leading energy management efforts, we have enjoyed **ANNUAL COST SAVINGS** of

\$1.04

OUR TOTAL ENDOWMENT AND LONG-TERM TRUST FUNDS AMOUNT TO \$217.9 MILLION



GENEROUS DONORS HAVE GIVEN

\$10.9 MILLION

TO UNB OVER THE YEAR,



OF THAT
WILL GO TOWARDS
STUDENT FINANCIAL
SUPPORT.





# OUR PRIDE, OUR PASSION AND OUR PURPOSE



At UNB, we are not only an institution of higher learning — we are a community. While we are shaped by the nobility of our values and mission, it is our people that define us. Our students, inspired to reform the world around them, provide our purpose. Our faculty drive the quest for knowledge and innovation, changing lives and improving our society. Determined and hard-working staff ensure our very future. Our alumni prove us proud, blazing a path to a better tomorrow. We are the University of New Brunswick.







It's no wonder our students are our inspiration.

They come to us from all parts of Canada and from countries far away, eager for knowledge and to forge a path to a bright future. But for most, they are not content just to study – they want to excel. They want to make a difference.

And they do – at UNB, across our nation and abroad.





## AGILE AND BRILLIANT: UNB TEAM NATION'S SMARTEST

The UNB Varsity Reds women's volleyball players are not just acing it on the court – they're winning titles in the classroom too. Every single member of the squad received straight As in the 2013-14 academic year. The team GPA was an impressive 3.9 out of 4.3.

Canadian Interuniversity Sport has a term for this: Academic All-Canadian. The title is awarded to each student-athlete who has a GPA of 3.5, or higher, while competing for a varsity team.

It's a truly impressive achievement for student athletes balancing full-time studies with heavy practice and competition schedules. "I couldn't be more proud of this team," head coach Jilliane Goulet says. "They definitely commit fully to everything that they do, and that shows on the court and on their transcripts."

UNB prides itself on having a high number of student athletes who are Academic All-Canadians – indeed, more than four in 10. But this is the first time an entire team has scored the distinction.



#### ATHLETES WITH SPIRIT, TALENT AND SMARTS

AT UNB, WE ARE IMMENSELY PROUD OF OUR ATHLETES. OUR VARSITY TEAMS, PLAYING IN THE CANADIAN INTERUNIVERSITY SPORT (CIS) AND CANADIAN COLLEGE ATHLETIC ASSOCIATION (CCAA) LEAGUES, REPRESENT THE PINNACLE OF ATHLETIC — AND OFTEN ACADEMIC — ACCOMPLISHMENT. INDEED, MORE THAN 100 OF OUR VARSITY ATHLETES HAVE BEEN SALUTED FOR ACADEMIC ACHIEVEMENT.

#### **UNB VARSITY REDS**





Men's basketball guard Javon Masters was named CIS Rookie of the Year, the first player from UNB to win the award.

#### **TOP EIGHT**

Adrian Robertson, the assistant captain of our hockey team, was named among the Top Eight Academic All-Canadians – the most prestigious academic award a university athlete in our nation can achieve.

#### **RECORD BREAKING**

Our women's soccer team had a record-breaking year, losing only one game, and finishing first in Atlantic University Sport (AUS) for the first time in its 19-year history.

#### **UNDEFEATED**

UNB's men's soccer team went undefeated, winning its second-consecutive AUS championship.

## UNB SAINT JOHN SEAWOLVES



WOMEN'S SOCCER DEFENDER
CARLY BAXTER IS A SIRC-CCAA
ALL-CANADIAN AND HOLDER OF THE
GERRY LEBLANC AWARD FOR LEADERSHIP,
DEDICATION AND SPORTSMANSHIP.



THIRTEEN VARSITY SEAWOLVES
CAPTURED THE CCAA NATIONAL
SCHOLARS AWARD FOR OUTSTANDING
ACADEMIC ACHIEVEMENT.



AT THE AUS CROSS COUNTRY
CHAMPIONSHIPS, KATIE ROBINSON
WAS NAMED ALL-STAR,
JOSH SHANKS ROOKIE OF THE YEAR
AND KATIE WALLACE RECEIVED THE
THE COMMUNITY SPORT AWARD.



TWO OF OUR TEAMS WERE
FINALISTS AT THE ATLANTIC COLLEGES
ATHLETIC ASSOCIATION CHAMPIONSHIPS,
WOMEN'S VOLLEYBALL AND
MEN'S SOCCER.



Fifteen years ago, UNB introduced the first undergraduate leadership studies program in Canada as Renaissance College opened its doors to students determined to transform the world locally and globally.

EMILIE CHIASSON is one of these leaders. In 2014, she spent 10 weeks in Malawi as part of the program, volunteering at a community-based lodge for children and adults ostracized because of their disabilities. There she met Husen, a five-year-old boy mentally impaired and blind due to complications at birth. "I'm playing with him, and he's smiling," says Ms. Chiasson. "He didn't learn that expression, because he can't see it. He feels it genuinely from within."

Ms. Chiasson says the experience opened her eyes and changed her way of thinking. "I may not have saved the world or even changed a life, but I learned to think more globally," she says. "And I think that produces more thoughtful and effective citizens at home."

In addition to domestic and international internships, students at Renaissance College also have opportunities to work with community organizations to make a real and profound impact during the pursuit of their degrees.





### MAKING THEIR MARK: OUR STUDENTS AFFECT CHANGE

ONE OF THE CORNERSTONES OF UNB'S STRATEGIC PLAN IS TO PROVIDE STUDENTS WITH AN EXCEPTIONAL AND TRANSFORMATIVE EXPERIENCE. BEFORE LEAVING, MANY OF OUR STUDENTS TRANSFORM US.

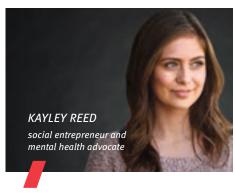


stories and creating conversations about mental illness, the company gives 10 per cent of profits back to mental health research, organizations and initiatives.

A graduate of UNB's Renaissance College, Ms. Reed is a recipient of a Lieutenant Governor's Silver Medal, awarded to the most outstanding student in each faculty.

As the face and force behind the student union-led mental health awareness campaign #MYDEFINITION (mydefinitionunb.com), Lee Thomas (BA '15) went public with her own struggles with an eating disorder and self-harm. Beyond her own daring, she works tirelessly to create meaningful and lasting change over the stigmas that haunt mental health.

"I've always been driven to help people," says Ms. Thomas, who serves as a vice-president with the UNB Student Union in Fredericton.



Kayley Reed (BPhil'14) is a model, fashion writer, mental health advocate and, with a boost from UNB's Summer Institute program, a business owner.

Ms. Reed is co-founder of Wear Your Label (wearyourlabel.com), a style- and socially-conscious clothing company dedicated to ending the stigma associated with mental illness. In addition to sharing



While volunteering with Food for the Hungry Canada to build a clinic in Guatemala, Nick McCullum witnessed chronic malnutrition among village children.

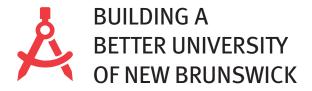
The experience made such an impression that he founded The Vitamin Project, a charity that organizes fundraising volunteers to provide Guatemalan children with multi-vitamins and other nutritional supplements.

With a strong belief that everyone has a duty to help others, Mr. McCullum is now headed for his fifth trip to Guatemala in May.

A first-year Bachelor of Science student at UNB Saint John with a double major in biology and psychology, Mr. McCullum also plays rugby with the university, is a student researcher with the Canadian Rivers Institute, high school valedictorian and a 2014 recipient of the TD Scholarship for Community Leadership.







Sir Howard Douglas, former lieutenant-governor of New Brunswick, was an early champion of our university and a deep believer in community service. More than two centuries later, we continue his legacy by looking for ways to build up our university. We engage pioneers in scholarship. We bolster scholarship support to open up new opportunities for students. We seek partnerships that will enrich our communities and our province. We are building a better UNB.

#### **STARTUP HUB:**

#### Canada's Most-Entrepreneurial University

Innovation and entrepreneurship are part of our cultural fabric at UNB and, this year, we proved we were the nation's best.

UNB was named Post-Secondary Institution of the Year at the Startup Canada awards in June. This was a tremendous endorsement of our efforts to cultivate the entrepreneurial mindset that thrives at UNB and to fuel innovation in the region.

It was also a significant achievement for our people — not only in our faculties of business and engineering, where the International Business & Entrepreneurship Centre and Dr. J. Herbert Smith Centre for Technology Management & Entrepreneurship (TME) continue to propel innovation — but also in faculties like nursing and arts where entrepreneurial thinkers continue to push boundaries in the world of social innovation.

Dr. Dhirendra Shukla, J. Herbert Smith ACOA Chair, spearheaded the TME Foundry Program this summer, providing technical and social innovators with funding, tools and mentorship to bring viable businesses to life. The Promise Partnership, led by Tracey Chiasson in the office of Saint John Vice-President Robert MacKinnon, connects UNB students as mentors to school-aged children in Saint John's Crescent Valley.





These entrepreneurial champions represent a trend across UNB, with faculty and staff creating opportunities for experiential learning and leadership, and building connections with key partners across Atlantic Canada's innovation ecosystem. The Pond-Deshpande Centre and Wallace McCain Institute have been instrumental in connecting our students with the vibrant business and innovation community that surrounds us, and equipping them with the tools to succeed.

Thanks to investment and support from government, non-profit and community partners, UNB has launched 23 startups in the last two years, while the university continues to commercialize research at almost twice the rate of other Canadian universities.

UNB is the most entrepreneurial university in Canada because creativity and entrepreneurialism is in our DNA. We recruit and cultivate talent, drive excellence and equip our students with the tools and experience to transform the world around them.

This was a significant moment for our institution. But it's only the beginning. 23
STARTUPS
IN TWO YEARS



#### **DEDICATED TO BUILDING A BETTER UNB AND BEYOND**



Dr. Valentine comes to UNB from the Massachusetts General Hospital Institute for Health Professions, where she served as associate dean for clinical affairs and community engagement. She has a PhD in health administration from Cornell University, and has held various clinical positions in addition to her research and teaching. As dean of nursing, and with her leadership in complex health care organizations, she will greatly benefit our nursing faculty, as well as the health organizations serving our communities.

#### KATHLEEN VALENTINE

Advocating for patients and their families

marketing and student recruiting initiatives, increasing the number of student transfer agreements, co-op programs and enriching research through collaboration.



#### **SETTING STUDENTS UP TO SUCCEED**

ANYONE WHO IS PASSIONATE ABOUT PURSUING HIGHER EDUCATION SHOULD BE GIVEN THE CHANCE TO DO SO. UNB'S COUNTLESS SUPPORTERS AND PROGRAMS ARE MAKING THAT HAPPEN.

#### 7

#### MI'KMAQ-MALISEET INSTITUTE SET TO SOAR

Since taking on the role of director of the Mi'kmaq-Maliseet Institute, David Perley has a vision of not only creating opportunities that benefit Aboriginal students on campus, but also to provide culture-based education to everyone at UNB. The institute administers programs for Aboriginal students at UNB and helps them enter the undergraduate faculty of their choice. Mr. Perley, who is pursuing a PhD in education at UNB, says this position appealed to him because of his lifelong interest in Maliseet/Mi'kmag education.

### Creating more opportunities for Aboriginal youth

Generous supporters of UNB, Judy and John Bragg (DLitt '14) share David Perley's passion for creating meaningful change for Aboriginal students.

They've invested \$500,000 in UNB's Faculty of Education to support aboriginal higher education.

Their gift will support scholarships and bursaries and a UNB summer camp for high school Aboriginal students. Their contribution will give countless students the chance to become university graduates and go on to pursue the opportunities, which that affords.



#### RICHARD J. CURRIE: IGNITING STUDENTS' ENTREPRENEURIAL SPIRIT

One of Canada's most accomplished business leaders, Dr. Richard J. Currie (LLD '87) established The Currie Scholarships more than a decade ago to recognize Maritime high school students who display outstanding leadership skills. The 2014-15 recipients of the four-year, \$50,000 scholarship were: Jack Campbell of Saint John, N.B.; Kaley Fitzpatrick of Halifax, N.S.; Emma MacDonald of Vernon River, P.E.I.; and Justin Thibault of Tatamagouche, N.S. A legacy of UNB's chancellor emeritus and the university's most generous living benefactor, Dr. Currie has been an inspirational leader for the university, the province and beyond.





#### **OUR STUDENTS MAKE US A BETTER UNIVERSITY**

ABOUT HALF OF OUR FIRST-YEAR UNDERGRADUATE STUDENTS ARE FIRST IN THEIR FAMILY TO ATTEND A UNIVERSITY, A REMARKABLE STATISTIC. IT SPEAKS TO THE ACCOMPLISHMENT OF THESE STUDENTS. AT TIMES, IT CAN ALSO CALL FOR A HIGHER LEVEL OF STUDENT SUPPORT. FORTUNATELY, AVERAGE SCHOLARSHIP SUPPORT AT OUR UNIVERSITY IS ON THE RISE. AND BECAUSE OF OUR SIZE, WE ARE IN THE ENVIABLE POSITION OF BEING ABLE TO GIVE OUR STUDENTS INDIVIDUAL AND PERSONALIZED ATTENTION. AT THE END OF THE DAY, THOUGH, OUR HIGH-CALIBRE STUDENTS MAKE UNB A BETTER PLACE TO BE.



UNB ENJOYS AN AVERAGE OF ONE FACULTY MEMBER FOR EVERY 17 STUDENTS – THE SECOND-LOWEST RATIO IN THE COUNTRY, ACCORDING TO MACLEAN'S.

80%

SEVEN IN TEN FIRST-YEAR UNDERGRADUATE STUDENTS ENTER UNB WITH A HIGH SCHOOL AVERAGE OF 80 PER CENT OR HIGHER.

**\$755** 

SUPPORT TO STUDENTS IN THE FORM OF SCHOLARSHIPS HAS INCREASED BY 24 PER CENT OVER THE LAST FIVE YEARS, TO AN AVERAGE OF \$755 PER FULL-TIME STUDENT.

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\$23,389

ENDOWMENT AND LONG-TERM TRUST PER STUDENT IS \$23,389 PER FULL-TIME STUDENT.



# PARTNERING WITH COMMUNITY SCHOOL BOLSTERS YOUTH



#### THE PROMISE PARTNERSHIP TEAM

Seated, from left: Joleen Searle, Stacey arthurs
Standing, from left: Steven Robar, Bjorn Lisik, angela thornton, tracey chiasson and erin bigney

UNB's Promise Partnership is bolstering our community's future by helping public school students in two of Saint John New Brunswick's priority neighbourhoods.

The Promise Partnership is an initiative that supports academic achievement in the classroom through its student mentoring and high school tutoring programs.

From modest beginnings in 2009, with just a few campus volunteers, the Promise Partnership has flourished into a full-fledged community outreach initiative with approximately 145 student volunteers each term, and several dedicated staff, led by Tracey Chiasson in the office of UNB Saint John Vice-President Robert MacKinnon.

From September to April, UNB Saint John students mentor youth at Hazen White-St. Francis School one day per week, supporting the school in its efforts to increase literacy and numeracy rates.

Two evenings a week, from September to June, the program brings high school students to campus, where they break out into small groups to work with Promise Partnership staff and UNB Saint John student tutors.

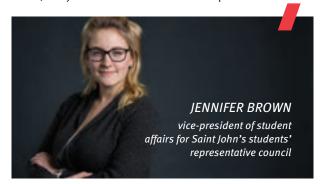
The Promise Partnership has had a ripple effect that extends beyond the classroom and the results have been extraordinary.

Before the Promise Partnership was created, only 37 per cent of students entering high school from Hazen White-St. Francis School graduated on time. In 2014, 80 per cent of participating students graduated on time, with 20 per cent set to graduate only one semester behind.

TD Bank Group has recognized the importance of the program and has shown its support by recently dedicating \$250,000 to support activities of the Promise Partnership.

Jennifer Brown, Vice-President of Student
Affairs for UNB Saint John's Students'
Representative Council, is from the Crescent
Valley neighbourhood and has been
mentoring and tutoring students through
the program for five years. She is a recent
recipient of a Caring Canadian Award
from Governor General David Johnston,
who recognized her work with the Promise
Partnership.

"Through the Promise Partnership, I have been given the opportunity to give back to the community where I grew up," Ms. Brown says. "I want to make a difference and I want to be a role model to these students, to let them know that despite the challenges they may have, they can determine their own path."



#### A TIRELESS ADVOCATE FOR SOCIETAL CHANGE

Rina Arseneault, the associate director of the Muriel McQueen Fergusson Centre for Family Violence Research at the University of New Brunswick, exemplifies the best of the unwavering dedication demonstrated by our staff.

For decades, she has been a passionate voice for ending family violence – advancing a community-based approach toward reducing and preventing it. For her research, education and her tireless advocacy, she has been named to the Order of Canada.

Motivated by a sincere desire to end the pain and suffering endured by victims of family violence and by a deep belief that change is possible, Ms. Arseneault goes about her work with determination and an unwavering professionalism.

A social worker, she has also worked at the HIV/AIDS Clinic at the Ottawa Hospital. With her work, she does not seek the limelight. Yet, in addition to being invested with one of the nation's top civilian honours at Rideau Hall, Canadian Living declares her one of Canada's Top Women Changemakers. Such recognition is richly deserved. We are proud of her and of the impact she is making on the world around her.











1964

UNB SAINT JOHN IS
ESTABLISHED IN UPTOWN
SAINT JOHN; TWO YEARS
OF ARTS AND SCIENCE
OFFERED, AND 97
STUDENTS ENROLLED.

1965

CITY OF SAINT JOHN DEEDS 87 ACRES OF LAND FOR THE DEVELOPMENT OF A NEW CAMPUS AT TUCKER PARK. 1969

UNB CHANCELLOR SIR MAX AITKEN OPENS TUCKER PARK CAMPUS.



#### **UNB SAINT JOHN: CELEBRATING 50 YEARS**

A campus built by a community, a community shaped by a campus.

UNB IS CELEBRATING THE 50TH ANNIVERSARY OF THE SAINT JOHN CAMPUS WITH EVENTS AND ACTIVITIES THAT RECOGNIZE THE ACCOMPLISHMENTS OF THE FOUNDERS AND BUILDERS OF THE CAMPUS; ITS FACULTY, STAFF, STUDENTS AND ALUMNI; AND THE SPECIAL CONNECTION IT HAS WITH THE COMMUNITY. LAUNCHED IN SEPTEMBER 2014, THE GOLDEN ANNIVERSARY WILL BE COMMEMORATED UNTIL APRIL 2015.







1974

FIRST GRADUATING CLASS AT THE TUCKER PARK CAMPUS.

1985-1999

A NUMBER OF MAJOR
INFRASTRUCTURE
PROJECTS ARE COMPLETED
TO ACCOMMODATE INCREASING
ENROLMENTS; ACADEMIC,
ATHLETIC, RESIDENCES AND
STUDENT BUILDINGS OPEN.

2011

THE CAMPUS GAINS A
NEW JEWEL WITH THE
OPENING OF THE \$25-MILLION
HANS W. KLOHN COMMONS,
A STATE-OF-THE-ART STUDENTCENTRED LEARNING AND
SOCIAL SPACE.







Innovation is the catalyst for new growth.

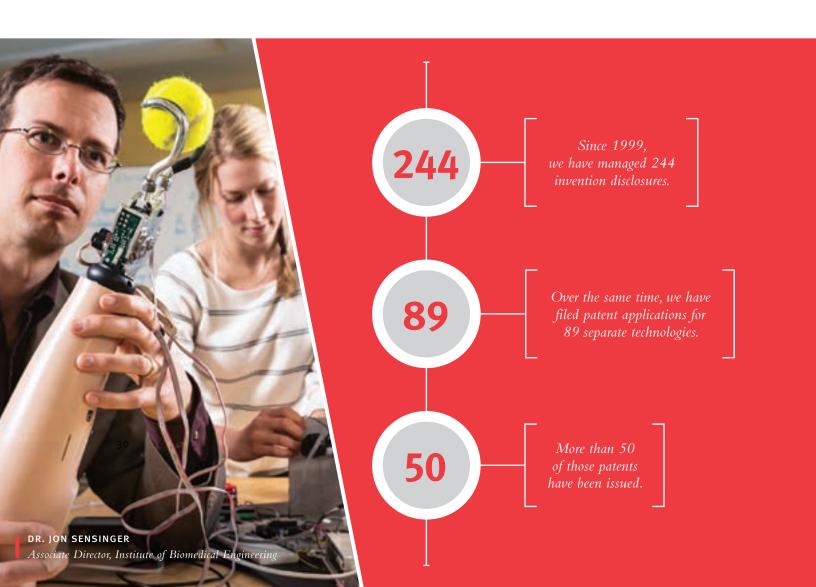
It feeds prosperity, enriches lives and communities, and provokes new discovery.

At UNB, we have good reason to be boastful about research and innovation. We are the hub for discovery in New Brunswick. Our faculty and students drive new insight and advancement with work that leads the nation and the globe – whether it be devising new theories on the universe, puzzling through better ways to deliver health care or starting up the world's first dermoskeletics lab. Our impressive record of commercialization has led to new jobs, new wealth and new opportunity.

### WORLD-LEADING RESEARCH INSTITUTES THAT ARE CHANGING SOCIETIES

AS THE PREMIER RESEARCH INSTITUTE FOR THE PROVINCE, IT IS NO SURPRISE THAT UNB IS BLAZING THE PATH OF INNOVATION. WE ARE HOME TO LEADING RESEARCH INSTITUTES AND SCIENTISTS WHO ARE PIONEERING DISCOVERY THAT CHANGES LIVES, CHANGES SOCIETY AND FUELS THE KNOWLEDGE ECONOMY. IT'S WHAT WE DO.

# UNB ATTRACTED MORE THAN \$45 MILLION RESEARCH FUNDING IN 2013-2014 : MILLION





DR. TIM KOSLOWSKI (LEFT) AND DR. JULIAN BARBOUR



It's not too often that a young researcher garners worldwide attention for a new theory on time and the universe.

But UNB theoretical physicist Dr. Tim Koslowski has.

In collaboration with colleagues in this country and abroad, he published a paper in Physical Review Letters that quickly attracted notice across North America, Britain and Australia.

Mainstream popular media, including Wired, Scientific American and Popular Mechanics, jumped in with explanations of the theory proposing a new direction for the movement of time.

Along with Dr. Julian Barbour at the University of Oxford and Dr. Flavio Mercati of Perimeter Institute for Theoretical Physics, he found for the first time that the forces of gravity have a bearing on how time flows and that gravity helps create markers to the past. No such markers of the future are generated – that's why we form memories of time past but not the future.

Dr. Koslowski, a post-doctoral researcher with UNB's gravity group, notes the fundamental laws of physics are the same whether time moves forward or backward. So why is it that we always watch time move ahead and not back?

That's a question he intends to answer – someday.



## WORLD'S FIRST DERMOSKELETICS RESEARCH CENTRE COMING TO UNB

UNB will host the world's first research centre for dermoskeletics, which is a new science that studies the interaction between the human body and its environment while assisted with a motorized orthosis or "dermoskeleton."

UNB Fredericton was chosen as the location for the Centre for Research in Dermoskeletics because of its extensive knowledge in biomedical engineering and human movement analysis, experience in working with patients that may benefit from the technology, and proximity to the Andrew and Marjorie McCain Human Performance Laboratory, the Stan Cassidy Centre for Rehabilitation and Canadian Forces Base Gagetown. In partnership with the Government of New Brunswick, and industry leaders B-Temia Inc. and Mitacs, the centre will employ more than 13 postdoctoral, doctoral and masters students over the next five years. This university-industry collaboration places our scientists, engineers and students at the forefront of this new science and gives them the opportunity to pioneer a new generation of motorized dermoskeletons.

B-Temia's dermoskeleton is a motorized limb orthosis that recognizes a user's intentions. Its motorized function and ability to move naturally – as a real arm or leg would – allows for much less stress on a person's joints compared to traditional passive orthotics. Using B-Temia's state-of-the-art technology, UNB's faculty and graduate students in the centre will work with health-care professionals to prevent occupational injuries and to improve mobility and quality of life for those living with physical and neurological conditions.





# SHELLEY DOUCET

Changing the future of health care

Improving the lives of Canadians through better health care delivery is the central focus of Dr. Shelley Doucet's work.

As the recently named Jarislowsky Chair in Interprofessional Patient-Centred Care at UNB, and as the recipient of a \$750,000 donation from the New Brunswick Children's Foundation, Dr. Doucet is researching a variety of ways to improve patient care.

In partnership with Mount Allison
University, Dr. Doucet and her team will
develop a virtual health centre – the first
of its kind in New Brunswick — to provide
more convenient and integrated care for
children with complex medical issues and
their families.

As Jarislowsky Chair, she leads research that will be used to develop and evaluate new models of health care focused on patients and delivered in the communities where they live.

"Our goal is to initiate changes in the way that health care is delivered to patients — to develop new practice models that shift the focus away from practitioners and back to patients and their families," says Dr. Doucet.

Dr. Doucet is an Assistant Professor in nursing and health sciences at UNB Saint John as well as a proud member of a family of UNB Saint John alumni. In 2005, she received her Bachelor of Nursing degree and in 2010 her PhD (Interdisciplinary Studies) from UNB.





### PIONEERING RESEARCH THROUGH LEADING-EDGE RESEARCH

#### **ERIK SCHEME**

New Brunswick Innovation Research Chair in Medical Devices and Technologies

Medical devices have seen rapid growth over the past five years, in part due to advances in wearable sensor technologies. At UNB, significant advances have been made in portable diagnostic devices, the control of human machine interfaces and human augmentation technologies. Dr. Scheme's work is reaffirming New Brunswick as a world leader in the discovery, innovation and commercialization of medical technologies.

#### PAUL PETERS

Canada Research Chair in Spatial and Social Inequalities of Health and Health Service Delivery

Dr. Peters's research has shown that where Canadians live significantly affects their health. Dr. Peters is assisting in the development of evidence-based approaches to health care policies, health outcomes and the provision of health services. His research directly addresses the fundamental reasons underlying health and social inequalities. He is working closely with a growing group of health researchers at UNB who are leading the direction for better health care policies in New Brunswick and across Canada.





#### MONICA WACHOWICZ

Cisco Systems Chair for Big Data

Dr. Wachowicz is developing breakthrough algorithms for real-time analytics, with data coming from 24 billion smart-connected devices by 2020. Her collaboration with Cisco's Internet of Everything Innovation Centre in Toronto will pave the way for the next generation of applications needed to support local and national economic development in Canada. Her research goes a step further in envisaging living laboratories, which will shape intelligently connected communities of the future.

#### NATALIA STAKHANOVA

New Brunswick Innovation Research Chair in Cyber Security

Despite enormous achievements in computing, recent cybersecurity breaches have demonstrated that no organization is immune to intrusion or attack. Dr. Stakhanova is leading the research and development of novel detection and response technologies for current, trending and anticipated cybersecurity threats. When commercialized, Dr. Stakhanova's work is expected to significantly reduce the cybersecurity threat response costs to governments and industry.





### RESEARCH WITH IMPACT ON THE WORLD AROUND US



Karen Kidd, Canada Research Chair in Chemical Contamination of Food Webs and Science Director at UNB's Canadian Rivers Institute, has caught the world's attention with study findings that the birth control pill threatens fish populations.

The Rivers Institute's mandate is to develop aquatic science needed to understand, protect and sustain water resources for the planet. This study has done exactly that by showing that the synthetic estrogen used in the birth control pill not only wiped out fathead minnows, but also seriously disrupted the whole ecosystem.

Dr. Kidd's research built upon discoveries made in the United Kingdom in the 1990s when researchers discovered that male fish began to develop eggs when estrogen was introduced in their habitat. The source was municipal effluents, as estrogen is not completely broken down during wastewater treatment.

From 2001 to 2003, small amounts of estrogen were introduced into a lake at the Experimental Lakes Area in Northern Ontario and the results were surprising. Almost immediately the estrogen affected the fathead minnow's ability to successfully reproduce and that led to larger effects on the lake's food web.

The first surprise was the near extinction of the fathead minnow only one year into the experiment.

"It was really unexpected that they would react so quickly and so dramatically," Dr. Kidd says. "The crash in the population was very evident and rapid, and related directly to the estrogen additions."

That created a domino effect, causing the population of lake trout, the fathead minnow's main predator, to decline. This also caused the number of insects, the fathead minnow's main source of food, to increase.

The good news, Dr. Kidd discovered, is that after the estrogen additions stopped, the fathead minnow population recovered back to what it was before the research began.

A number of rivers in Canada contain male fish that are feminized because of discharges of municipal wastewater effluents. But, as Dr. Kidd notes, "It's a problem that we can certainly solve with better wastewater treatment."







At the University of New Brunswick, we are blessed to have a community of alumni that is generous, involved and resolute. Our graduates exemplify the richness of a UNB education and the opportunities it provides. We are proud of their leadership. We are grateful for the connections they keep, for the mentorship they provide today's students and for the lively engagement they have with UNB. We are grateful for the investments they make in their alma mater's future. They are truly paying it forward to future generations.



# DRAWING ON SUCCESS TO BREED FUTURE OPPORTUNITY

NG POCK TOO (BSCENG '68, LLD '93), CHAIRMAN AND CEO OF NEW BOARD TECHNOLOGY PTE LTD. IN SINGAPORE, IS KEEN TO RETURN TO UNB TO SHARE HIS KNOWLEDGE AND EXPERIENCE.

"I ENJOY VERY MUCH SHARING MY KNOWLEDGE AND EXPERIENCE WITH THE BUSINESS STUDENTS," DR. NG SAYS OF HIS STINTS AS EXECUTIVE-IN-RESIDENCE HERE. A FORMER POLITICIAN AND POLITICAL SECRETARY TO THE PRIME MINISTER OF SINGAPORE, HE IS WIDELY CREDITED FOR HIS WORK DEVELOPING THE ECONOMY OF HIS NATIVE COUNTRY. "TO THE EXTENT I CAN HELP BETTER PREPARE THEM FOR REAL LIFE AFTER UNB, I WILL BE MORE THAN HAPPY TO PLAY MY PART."

## 'A UNIVERSITY WHERE ANYTHING IS POSSIBLE'

Since 2008, Kumaran Thillainadarajah (D-TME'10) has become founding CEO of Smart Skin Technologies, won a New Brunswick Young Entrepreneurs Award and raised \$6 million in capital to support his venture.

And he has UNB to thank for his success.

Mr. Thillainadarajah came up with the idea for Smart Skin Technologies as part of UNB's Activator program, where he worked on an actual startup venture.

"Without the activator program at UNB," he says, "I wouldn't be where I am today."

Smart Skin is the commercialization and research of soft flexible sensors technology used by major bottling and packaging companies in this continent and beyond to detect problems in product lines. It's been so successful, it is expanding into Europe and has set up an office in Munich.

Mr. Thillainadarajah isn't the only one from UNB involved with this successful Fredericton-based startup. All 20 of his staff – including 13 full-time engineers – are UNB graduates.

"Hiring employees is one of the most important decisions a company makes," he says. "It's really no coincidence that I chose to work with people who went to a university that helped get my company started — a university where anything is possible."



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 $<sup>\</sup>star$  pending revision of the UNB Act





