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When you combine strong vision, well-defined goals, and brilliant, dedicated scholars, you have a formula that surely drives success. This is our formula at Carleton and it should no longer be a secret. Our researchers are moving ahead at a great pace and we are certainly proud of their results.

When they work hand-in-hand at SNOLab with Canada’s latest Nobel laureate, Dr. Arthur McDonald and enjoy one of the top rankings for citations in physics in the world, they deserve recognition. When our faculty and students lead the way in partnerships from Aerospace Engineering with NAVCan to entrepreneurship and innovation with the Bombay Stock Exchange, it is time to take note. When our students consistently win international awards such as the first place in the Economist contest on finance or the top place in the Ontario IDeA competition – not only this year but every year since its inception, I invite you to join me in applause.

Research at Carleton is characterized by these words: collaboration, leadership and resilience. Working in partnership with companies, NGOs and other institutions around the world we have built and become part of strong networks. Working deftly and smoothly across disciplines, we are able to develop new approaches to imagining solutions to some of the big problems that plague the world. Our new International Water Institute is an example of such work where two dozen researchers in science, engineering, architecture, policy and social work collaborate with top researchers around the world to provide solutions to ensuring the sustainability of our most precious resource.

Leadership means not just imagining the best concept and creating or joining vibrant networks around the world and involving scholars with different profiles, but offering the work to the world for critical review and judgement. Doing so, has led our teams to win second place in the CanSat competition involving a rocket-deployed glider equipped with sensors, for example. It has led to the construction of a large simulator which has drawn the attention of NASA. It also means that scholars in the arts have worked with national museums to create digital histories while themselves writing award-winning books. Finally, resilience enables us to know that if we won second place this year, we will learn and go for gold next year!

I appreciate your interest in the fine work of my colleagues and our students. I invite you to visit us in reality or virtually and to join us in our extraordinary work.
MESSAGE FROM NIMAL RAJAPAKSE
VICE-PRESIDENT (RESEARCH AND INTERNATIONAL), CARLETON UNIVERSITY

JUST OVER A YEAR AGO I JOINED CARLETON AS VICE-PRESIDENT, RESEARCH AND INTERNATIONAL AND IN THAT TIME I HAVE SEEN REMARKABLE RESEARCH PARTNERSHIPS AND FUNDING AWARDED TO CARLETON UNIVERSITY FACULTY AND GRADUATE STUDENTS.

One of my first priorities upon arriving to campus was to visit each of the university’s departments, meet the researchers and learn more about their work. This introduction to Carleton would not be complete without touring the various labs and offices to see our research in action first-hand. I have come away deeply impressed by the breadth and depth of the innovative research conducted here.

In the past year, Carleton has increased and celebrated its research collaborations with local, national and international partners – including Ottawa’s Urbandale Construction, the Jarislowsky Foundation, Cisco Canada, the ONE Campaign, and organizations spanning Africa, South America, Europe and India.

Carleton researchers have received significant funding boosts from NSERC and SSHRC, won Fulbright Awards and Carnegie Fellowships, and have been awarded new research Chairs.

This year, I am pleased to present the inaugural Year in Review for Carleton’s Research and International office. The 2015–2016 report summarizes just some of the accomplishments realized at Carleton over the past year and provides a brief glimpse into the innovative work we are doing, the partnerships we are forging and the recognition we are receiving.

Based on the foundation we have laid this year, I anticipate reporting even greater achievements in next year’s Year in Review. In the interim, for updates on Carleton’s research and international initiatives, I invite you to visit our website at research.carleton.ca.
BY THE NUMBERS

24
CANADA RESEARCH CHAIRS

27
ROYAL SOCIETY FELLOWS

16
ORDER OF CANADA RECIPIENTS

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NATIONAL KILLAM AWARD WINNERS
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<td><strong>CARLETON UNIVERSITY RESEARCH CENTRES</strong></td>
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Carleton University is expanding its research in modern, sustainable residential design through its innovative living lab opened last May – the Urbandale Centre for Home Energy Research. With many partners including funding from the Canada Foundation for Innovation, the Government of Ontario, and a full-scale, single-family detached house donated by Urbandale Construction, Carleton researchers and students will use the building to test energy consumption in the residential sector.

The Sudbury Neutrino Observatory Collaboration, which includes Carleton University, was awarded the 2016 Breakthrough Prize in Fundamental Physics. The $3-million award is shared with our international experimental collaborators studying neutrino oscillations.

Dr. Achim Hurrelmann, director of the Institute of European, Russian and Eurasian Studies (EURUS) was named as Jean Monnet Chair in 2015-2018 under the European Union’s Erasmus+ program for education, training, youth and sport. The three-year term is a teaching and research post.

Carleton University and Cisco Canada dedicated $1.8 million to establish a Research Chair in Sensor Technology for the Internet of Things (IoT). Sensor technology facilitates the exchange of information between humans and technology in a range of sectors including transportation, manufacturing, health care and education. Newly appointed as Chair, Dr. Mohamed Ibnkahla, will focus his research on improving these innovative sensor networks.
MANAGING MIGRATION IN WORLD SOCIETY

The department of Political Science Associate Professor James Milner hosted the Power and Influence in the Global Refugee Regime conference in the fall of 2015. The conference examined the global refugee regime, its influencers and policies. Scholars, government officials and experts from across Canada, the U.S., Europe and other countries attended. Milner was subsequently invited to speak to the United Nations in July.

CARLETON ESTABLISHES JARISLOWSKY CHAIR IN WATER AND GLOBAL HEALTH

Carleton University and the Jarislowsky Foundation announced in March the new $4-million endowed Jarislowsky Chair in Water and Global Health. The yet-to-be named academic in the position will conduct research into the provision of safe drinking water and improved sanitation to communities across Canada and around the globe.

COUNCIL FOR MUSEUM ANTHROPOLOGY’S LIFETIME ACHIEVEMENT AWARD

The Council for Museum Anthropology (CMA) presented Dr. Ruth Phillips, Canada Research Chair in Modern Culture with the 2015 Lifetime Achievement/Distinguished Service Award in recognition of her contributions to the advancement of museum anthropology.
FOUR CANADIAN MUSEUMS ASSOCIATION AWARDS FOR CARLETON

The Canadian Museums Association presented four awards to members of the Faculty of Arts and Social Sciences this year. Art History graduate student Hannah Keating received the Dr. Shirley L. Thomson Award for Young Curators. Brian Foss, director of the School for Studies in Art and Culture, shared the Award of Outstanding Achievement in Exhibitions - Art for a co-curated exhibition 1920s Modernism in Montreal: The Beaver Hall Group. The Carleton University Art Gallery and its partners shared the Award of Outstanding Achievement in Exhibitions – Cultural Heritage for Walking with Our Sisters Ottawa, which also won a second, newly minted award for best exhibition of the year.

ABORTION UNDER APARTHEID IN SOUTH AFRICA GARNERS AWARDS

The department of History’s Susanne M. Klausen launched her book Abortion under Apartheid: Nationalism, Sexuality, and Women’s Reproductive Rights in South Africa. Published by Oxford University Press, the book examines how the ruling Afrikaner National Party attempted to regulate women’s reproductive sexuality under apartheid. It won the Joel Gregory Prize awarded by the Canadian Association for African Studies for best book in African Studies, and also received the Canadian Committee on Women’s History Book Prize. It was also shortlisted for the Wallace Ferguson Prize by the Canadian Historical Association.

SECOND CARNEGIE AFRICAN DIASPORA SCHOLAR FELLOWSHIP

Dr. Nduka Otiono, assistant professor of African Studies, has been awarded a second fellowship by the Carnegie African Diaspora Fellowship Program. The fellowship pairs African diaspora scholars with higher education institutions in Africa to collaborate on curriculum co-development, research, graduate teaching, training and mentoring activities. Dr. Otiono is collaborating with Nigeria’s Delta State University.

NSERC SYNERGY AWARD FOR CARLETON CHEMISTRY PROFESSOR

Carleton Chemistry professor Dr. J. David Miller was presented with the NSERC Synergy Award in recognition for his innovative research on natural toxins produced by endophytes commonly known as fungi. Endophytes, a natural form of pest control, may be the key to preserving environmental resources, such as forests, and the jobs that rely on them.

TWO EARLY RESEARCHER AWARDS RECEIVED

Dr. Sonia Chiasson, Canada Research Chair in Human-oriented Computer Security, and Dr. Audrey Girouard, assistant professor in the School of Information Technology have each received a Government of Ontario Early Researcher Award (ERA) worth $150,000 each. Dr. Chiasson is designing online interfaces that help increase privacy and security for children. Dr. Girouard is developing flexible technology such as bendable cellphones and their user interfaces to improve manual dexterity.

PARTNERS IN RESEARCH ENGINEERING AMBASSADOR AWARD

Dr. Banu Örmeci, Canada Research Chair in Wastewater and Public Health Engineering received the 2016 Partners In Research (PIR) Engineering Ambassador Award. Dr. Örmeci develops new technologies to clear pathogens and contaminants from wastewater and sludge so they do not pose a threat to public health and environment.
ROYAL SOCIETY RECOGNIZES CARLETON RESEARCHER

Canada Research Chair in Fish Ecology and Conservation Physiology Dr. Steven Cooke has been elected to the Royal Society of Canada’s College of New Scholars, Artists and Scientists. Dr. Cooke’s research on recreational fisheries in freshwater and marine systems has changed how fisheries around the globe are managed.

HUMBOLDT RESEARCH FELLOWSHIP FOR EXPERIENCED RESEARCHERS

The Alexander von Humboldt Foundation has awarded Dr. Erik Anonby, associate professor in French and Linguistics, the Humboldt Research Fellowship for Experienced Researchers. The fellowship will allow Dr. Anonby to conduct research mapping the languages of western Iran’s Zagros Mountains including Kurdish, South Azerbaijani, Aramaic, Luri and Persian.

LINNEAN SOCIETY OF LONDON BESTOWS FELLOWSHIP ON CARLETON PROFESSOR

Dr. Jean-Guy Godin, Chancellor’s Professor of Biology and authority on the behavioural ecology of fishes, was elected fellow of the Linnean Society of London. Dr. Godin received the honour in recognition of his lifetime research contributions to our understanding of the evolution of animal behavioural adaptations for survival and reproduction in the wild.

STUDENT AWARDS

TELLING SSHRC TALES

The Social Sciences and Humanities Research Council (SSHRC) has named doctoral candidate in History Ian Wereley among its top five finalists in its 2016 Storytellers challenge. Wereley’s video submission, Imagining Energy in Transition: Past, Present, Future examines what Canada stands to gain from shifting to alternative energy sources. Wereley is the sixth Carleton student to place in the competition since 2013.

CARLETON SHOWCASES WINNING DESIGNS AT IDEA COMPETITION

The Council of Ontario Universities awarded the annual Innovative Designs for Accessibility (iDeA) competition prizes to Industrial Design students Micah Rakoff Bellman and Melody Chen. Bellman’s flexible kitchen work space design took first place, and Chen’s accessible closet storage unit design placed third.

FULBRIGHT CANADA STUDENT AWARD

Janice Freamo, a PhD candidate in the department of Political Science, has received a Fulbright Canada award to study at the University of Chicago where she will continue to work on her project Generations and Genealogies: Plato and Nietzsche on the Status of the Elder.

CARLETON RAVEN KNIGHTS BLAST-OFF TO SUCCESS AT 2016 CANSAT COMPETITION

Carleton University’s Ravens Knights team placed second at the 2016 CanSat Competition. Carleton’s team designed a rocket-deployed glider equipped with sensors. The team launched the glider into the sky where it was released at an altitude of 3,300 feet to gather and transmit data. The Raven Knights team comprised students from a number of disciplines within the Faculty of Engineering and Design.

GRADUATE SCHOLARSHIPS

Carleton master’s and PhD students received 111 Tri-Council scholarships in 2015-2016 to continue their innovative research.
**COMMUNITY ENGAGEMENT**

**1125@CARLETON ENGAGES YOUTH IN GLOBAL PROBLEM-SOLVING**

Carleton launched 1125@Carleton to provide researchers and the broader community with space in which they can collaborate on a range of social topics. 1125@Carleton houses the Born Social Fellowship and ONE Campaign’s Canadian headquarters.

The Born Social Fellowship is a partnership between Carleton, RECODE, Impact Hub Ottawa and Carleton University Students’ Association that encourages students to develop and contribute leadership skills toward resolving local and global challenges. Design Thinking workshops challenge 1125 members to explore solutions in response to a specific societal problem.

ONE Campaign is an international advocacy organization co-founded by U2’s Bono and is dedicated to ending extreme poverty and preventable disease in Africa.

**CARLETON AND NAV CANADA LAUNCH AEROSPACE CENTRE**

Carleton University and NAV Canada are establishing an Aerospace Centre of Excellence in Cornwall, Ontario that will offer a variety of pioneering programs to students. A joint professional short course on uninhabited aerial vehicles (UAVs), commonly referred to as drones, recently debuted at the NAV Centre. The five-day course was held at NAV Canada’s professional training facility in Cornwall. It’s the first of what the centre hopes will be an ongoing and developing program on drones.

“Ultimately we would like to see degree programs offered here,” says Garry Brown, director, International Training Programs and Delivery with NAV Canada.

**CARLETON’S 3CI LAUNCHES INNOVATIVE COMMUNITY PROGRAMS**

Since 1997, the Carleton Centre for Community Innovation (3ci) has been collaborating with the non-profit, government and business sectors to promote innovation in community-based economic development. Current projects include the Responsible Investing Initiative (Rii) which encourages Canadian institutional investors to adopt responsible investment practices. In Communities First: Impacts of Community Engagement (CFICE) nonprofits, post-secondary institutions and funding agencies are working to build innovative, resilient and prosperous communities. Another project aims to improve access to university education among the Inuit in the Canadian Arctic.
CARLETON OPENS THE FRONT DOOR

Carleton University has opened Front Door to provide external partners with access to the university’s research expertise and infrastructure. Through fee-for-service research contracts, consulting services, and R&D partnerships, Carleton Front Door offers access to high-end technical equipment and expertise to the community, while generating revenue to further innovative research.

COMMUNITY OUTREACH

- The Faculty of Engineering and Design’s lecture series, Ingenious Talks, engages the public in discussions of timely and innovative ideas in engineering, design and technology.

- The Faculty of Science’s series, Science Café, addresses scientific issues of the day with Ottawa audiences.

- The Faculty of Arts and Social Sciences’ CU in the City presents its research to public audiences in cities across Canada.

- The Faculty of Public Affairs shares research, teaching and learning topics through its monthly Bagels and Banter series. Author Meets Readers invites Carleton students and the community to join an informal discussion on newly published books.

- The Sprott School of Business hosts Sprott Topics speakers series on an array of topics targeting the Ottawa community.

The annual butterfly show at Carleton University is open to the public at no cost. More than 1,000 Ottawa-area students and 10,000 visitors total came through the steamy greenhouse doors last year. The nine-day show features 1,300 butterflies representing 41 different species worldwide.
Carleton has a history of innovation and collaboration with the private and public sectors to promote economic development. Carleton has launched more than 200 startups since 2010. In 2012 alone, R&D projects generated more than $1.8 million in commercial activity.

**TIM Program**

A master’s-level program, Technology Innovation Management (TIM) leads to a Master of Applied Science (MASc) degree, Master of Engineering (MEng) degree, or a Master of Entrepreneurship (MEnt) degree. The program trains aspiring entrepreneurs who plan to launch new companies or who are seeking senior roles in established companies. The program also prepares individuals to work with entrepreneurs.

**Lead To Win**

UBI Global named Carleton’s Lead To Win program for entrepreneurs one of the top 10 university business incubators in North America.

Lead To Win offers start-up companies support from training to office space. “To grow, a new venture must earn the right to exist and find a business model that is stronger than the business models of its competitors. Lead To Win helps individuals with great ideas understand how to make money from growing their own technology businesses,” says Dr. Tony Bailetti, executive director, Lead To Win.

**Accelerator for Student Entrepreneurs**

Carleton University opened Accelerator, a state-of-the-art facility for students working to launch and grow their businesses. To celebrate its launch, Accelerator hosted the Technovation Challenge. The three-month curriculum leads young women through the process of designing and developing mobile apps and pitching their startup businesses.
NSERC AWARDS ENHANCE BUILDING AND WATER SAFETY RESEARCH

The Natural Sciences and Engineering Research Council of Canada (NSERC) has presented department of Civil and Environmental Engineering Professor Mohammad Rayhani with two Idea to Innovation Grants (i2i) in support of his research projects.

Dr. Rayhani’s first project, *Hook pile: an innovative cast-in-place pile foundation system* focuses on improving the strength and safety of buildings’ foundations and how hook piles used in construction can improve resistance to both high winds and the building’s weight.

His second project, *Graphene-based adsorptive filter for terra aqua systems (GRAFTA)* is a nanotechnology-based adsorptive filter technology that removes heavy metals from contaminated water. The technology will improve the safety and efficacy of wastewater treatment practices.

GRADUATE STUDENTS IN THE TIM PROGRAM GROW THEIR STARTUP WITH CADILLAC FAIRVIEW

Carleton’s Technology Innovation Management (TIM) program helped graduate students Patrick Millward and Colin Pritchard expand their fledgling startup InteractiveStudios Inc. into the retail sector.

InteractiveStudios Inc. creates publicly accessible devices that help people navigate complex buildings. They started out by developing a wayfinding application for the Queensway-Carleton Hospital in Ottawa. After they enrolled in the TIM program, they scaled up their business.

Millard and Pritchard chose the TIM program because it gave them the skills required to expand their business without distracting them from day-to-day operations. In the process, they learned that entrepreneurship is “not something that you are born with; it is something that can be learned.”

InteractiveStudios has expanded its client base and has been developing a device for Cadillac Fairview’s Rideau Centre shopping mall in Ottawa.

“We are on track for generating annual revenues exceeding $1 million in annual sales within the first three years in business,” says Millward.

“TO GROW, A NEW VENTURE MUST EARN THE RIGHT TO EXIST AND FIND A BUSINESS MODEL THAT IS STRONGER THAN THE BUSINESS MODELS OF ITS COMPETITORS.”
Political Science Professor Christina Rojas is focused on the role that Indigenous knowledge plays in the ongoing transformation of the societal paradigm in Bolivia and the role played by Indigenous women in pushing for progressive legislation.

Close to 20 Carleton team members are working on the ATLAS experiment at CERN, one of four large detectors located around the Large Hadron Collider which is designed to explore the physics that underlies the behaviour of the building blocks of the universe.
**MYANMAR**
Architectural Conservation and Sustainability Professor Mario Santana and international PhD student Davide Mezzino, along with UNESCO, are working toward capacity building of Myanmar experts in the documentation of temples in Bagan using 3-D techniques in studying built heritage.

**AUSTRALIA**
Steven Cooke, Canada Research Chair in Fish Ecology and Conservation Physiology, is collaborating with partners in Australia to study the sustainability of marine fisheries.

**NEPAL**
Stephan Gruber led a pilot study towards assessing environmental and societal impacts of permafrost thaw in the Hindu Kush Himalayas.

**MALAWI**
Paul Mkandawire is assessing factors associated with HIV testing among youth in Northern Malawi.

**TANZANIA**
A team of students and professors from engineering, business, and industrial design travelled to Londigo where they worked with the local community to come up with regionally appropriate water harvesting solutions, called *From Buckets to Rain Barrels*. A multi-year project, it is a fourth-year Capstone Design Project.
WE PARTNER WITH THE WORLD

CARLETON INTERNATIONAL
Carleton International is the hub for Carleton University’s international activities. It spearheads outreach activities and international partnerships, identifies prospects and opportunities for international research, teaching and learning, hosts distinguished globally relevant events and welcomes international delegations.

CANADA–INDIA CENTRE FOR EXCELLENCE
The Canada–India Centre for Excellence in Science, Technology, Trade and Policy is the premier centre for the study of the Canada–India partnership. It was established in 2011 with support from the Government of India, industry and the Indo-Canadian community and offers policy-relevant research analysis. It also leads research projects in science, energy, trade and technology and facilitates networking opportunities and project collaborations.

GLOBAL ACADEMY
Carleton University’s Global Academy collaborates with international partners to design and deliver non-credit professional development courses and programs to a global audience.

THE NATIONAL CAPITAL CONFUCIUS INSTITUTE
The National Capital Confucius Institute at Carleton University serves as a vehicle for political, economic and cultural exchange, offering a forum for exploring the opportunities relating to the Canada–China relationship.

CENTRE FOR EUROPEAN STUDIES – EU CENTRE OF EXCELLENCE
The Centre for European Studies conducts research, teaching, and public outreach activities in the area of European Studies in the Ottawa area and also sponsors research publications, such as policy briefs and books resulting from annual research conferences. The centre is housed jointly in the Institute of European, Russian, and Eurasian Studies and the Department of Political Science.
CARLETON’S ATLAS AND INFRASTRUCTURE PROTECTION RESEARCH BOOSTED BY CFI

Carleton University received an $8.9-million boost from the Canada Foundation for Innovation (CFI) as part of its Innovation Fund in 2015. Physics Professor Gerald Oakham (top photo) received funds to establish detectors for the exploration of high-energy physics with ATLAS, one of two experiments that discovered the Higgs boson at the European Laboratory for Particle Physics (CERN). Armed with his funding, David Lau, professor of Civil and Environmental Engineering, will establish a multi-hazard test facility that will help develop breakthrough technologies, products and techniques that will enhance resilience and reduce the cost of building and maintaining future and existing Canadian infrastructure.

NSERC BOOSTS RESEARCH FUNDING FOR IMPORTANT FISH ECOLOGY STUDY

The Natural Sciences and Engineering Research Council of Canada (NSERC) has awarded funding to Professor Steven Cooke, Canada Research Chair in Fish Ecology and Conservation Physiology. Under the Collaborative Research and Development (CRD) program, he will research the effect of hydroelectric power generation on fish and will consult with B.C. Hydro on his findings.
SSHRC PARTNERSHIP GRANT TO HELP CONSERVE CANADA’S ARCHITECTURAL HERITAGE

Steven Fai, associate professor in the Azrieli School of Architecture and Design and director of the Carleton Immersive Media Studio (CIMS), received a Partnership Grant worth almost $2.5 million to fund global research involving the theoretical, practical and ethical use of new digital technologies for the conservation of Canada’s architectural heritage.

FACULTY OF SCIENCE’S ALEX WONG RECEIVES CIHR NEW INVESTIGATOR AWARD

The Canadian Institutes of Health Research (CIHR) presented Alex Wong, assistant professor in the department of Biology and former Banting Postdoctoral Fellow with a New Investigators Salary Award. Wong will receive $300,000 over five years to support his research on antibiotic resistance and bacterial adaptation. Dr. Wong will research infectious bacteria, including E. coli and bovine tuberculosis, to identify mutations that lead to resistance.

TWO NSERC CREATE GRANTS FOR UNIQUE GRADUATE STUDENT TRAINING PROGRAMS

Carleton University received $3.3 million from the Natural Sciences and Engineering Research Council of Canada (NSERC) Collaborative Research and Training Experience Program (CREATE). Mario Santana Quintero, assistant professor of Architectural Conservation and Sustainability (top photo), will lead a team project called Engineering Students Supporting Heritage and Sustainability that will address the conservation, rehabilitation and sustainability of existing structures and designated historic buildings. Anthony Whitehead, director of the School of Information Technology and an associate professor in the School of Computer Science, will conduct a team project called Collaborative Learning of Usability Experiences (CLUE). The program will provide opportunities for students to experience the usability evaluation process on real projects and produce a new hybrid of trainees who can more effectively apply usability skills and research current systems as a result of real world experience.
OUTSTANDING BIOMEDICAL ENGINEER OF THE YEAR

Dr. Adrian Chan, professor of Systems and Computer Engineering, received the Canadian Medical and Biological Engineering Society’s Outstanding Biomedical Engineer of the Year Award for his research on improving biomedical monitoring. With the proliferation of wearable devices used by patients at home to monitor and transmit data to medical experts, Dr. Chan is working on the challenges in determining the validity of data collected by non-professionals in uncontrolled environments.

DISTINGUISHED PROFESSOR RECEIVES MULTIPLE AWARDS

Dr. Monique Frize, Distinguished Professor in the department of Systems and Computer Engineering, was elected to the councils of the International Union of Physical and Engineering Sciences in Medicine and the International Federation of Medical and Biological Engineering (IFMBE).

The Canadian Medical and Biological Engineering Society also presented Dr. Frize with a Lifetime Achievement Award. The IFMBE named her an honorary life member and presented her with an award for Dedication and Outstanding Contributions as the North America Regional Group Representative and Chair of the Women in Biomedical Engineering Committee.

Dr. Frize partners with the Children’s Hospital of Eastern Ontario (CHEO) to improve medical treatment for children.

IMPROVING HEALTH CARE USING SENSORS

Carleton’s Canada Research Chair on Sensor Systems Dr. Sreeraman Rajan examines sensor signal processing, the data it generates and its potential to improve health care for seniors. Dr. Rajan’s research addresses fundamental questions in signal processing and the development of the next generations of sensor systems.

The $500,000 grant that accompanies the five-year Canada Research Chair will allow Dr. Rajan to examine various kinds of sensors, including ambient environments that are sensitive and responsive to the presence of people without being obtrusive.

Dr. Rajan says a methodology for using information more efficiently will result in significant solutions for elderly patients, for the ill in underprivileged countries, and even for detecting life through rubble in disaster zones.
Dr. Brian Foss, director of the School for Studies in Art and Culture and professor of Art History, has spent the bulk of the last decade researching an unsung but intriguing collective of Canadian artists known as the Beaver Hall Group.

Dr. Foss’s research culminated last fall in an exhibition for the Montreal Museum of Fine Arts titled *1920s Modernism in Montreal: The Beaver Hall Group*, which contains nearly 200 items from a number of institutional collections, as well as from 42 private collections. The exhibition features many paintings, sculptures, drawings and miscellaneous objects borrowed from approximately 75 institutional and private collectors across the country. Dr. Foss followed the lead of the primary curator of the show, Jacques Des Rochers, the Montreal Museum of Fine Arts Curator of Québec and Canadian Art before 1945. Their teamwork paid off and was a fine example of scholarship undertaken jointly by the university and outside institutions.

*1920s Modernism in Montreal: The Beaver Hall Group* received 92,000 visitors over the course of its three-month showing at the Montreal Museum of Fine Arts and won this year’s highly coveted Canadian Museums Association’s Award of Outstanding Achievement for Art Exhibitions. The exhibition catalogue captured the 2016 Melva J. Dwyer Award, given to exceptional reference or research tools relating to Canadian art and architecture.

The Beaver Hall Group was a diverse assortment of like-minded Montreal-based artists, many of whom shared a studio and exhibition space on the city’s Beaver Hall Hill in the early 1920s. Like Toronto’s celebrated Group of Seven, the Beaver Hall Group offered a creative portrayal of life in Canada; but they did so in a very different way. “Unlike the Group of Seven’s vast interpretations of Canada’s natural, unblemished backdrops, Beaver Hall Group art featured portraits of contemporary Canadian individuals, rural life and urbanized, populated cityscapes,” explains Foss.
Dr. Spencer is collaborating on three projects to study homelessness, policing and sexual violence, and the impact of forced Indigenous adoption in Canada.

In the first, Dr. Spencer is interviewing homeless men in Canadian and U.S. cities. “This project is focused on their experiences of violence and victimization while living on the streets, their oft problematic interactions with the police and the complex ways in which they fight for their humanity under brutal conditions engendered by neoliberal capitalism.”

Another project examines police response to sexual violence and harassment online and in communities across Canada. Funded by the Social Sciences and Humanities Research Council (SSHRC), and the Ontario Ministry of Community Safety and Correctional Services, Spencer, as principal investigator and two co-investigators, conducted case studies in 10 police service organizations across Canada to “understand how officers and analysts understand sexual violence, the meanings unit members attach to specific offenders, and their experiences in working with children, youth and adult victims of sex crimes.”

Finally, Dr. Spencer and four co-applicants, led by University of Regina’s Raven Sinclair, were awarded $313,480 by SSHRC to engage in a genealogical study of Indigenous adoption in Canada between 1950 and 1985. The group will look for any legal or policy basis at the provincial and national level for forcibly removing children from their families. They will conduct archival work and interview social workers who were in the field at the time. Dr. Spencer and the team will also interview adoptees.

“This was an attempted cultural genocide on the Indigenous people of Canada that was, and remains, not well known outside of the Indigenous community,” says Dr. Spencer. “It was more obscure and difficult to recognize as a colonizing practice because the language of saving children from ostensibly abusive or neglectful parenting sanitized the explicit assimilationist rhetoric.”
Hillary Maddin, assistant professor in the department of Earth Sciences participated on a team that has identified a Canadian fossil. With its steak knife-like teeth, the fossil had long been mistaken for that of a dinosaur.

A farmer discovered the fossil on his property near French River, PEI in 1845 and sold it to Philadelphia’s Academy of Natural Sciences. It was named Bathygnathus (meaning deep jaw) borealis (from the north) when it was mistaken as the lower jaw of a large bipedal dinosaur species being collected in Europe at the time.

The Bathygnathus specimen was the second vertebrate fossil named from Canada. Dendrerpeton, an extinct amphibian from Nova Scotia, was named by Sir Richard Owen two months earlier. Several paleontologists have studied the Bathygnathus specimen since it was first named, but its precise identity was unknown until now.

Fossils of Dimetrodon have now been found in the U.S., Canada and Germany.

The team’s study was published in the Canadian Journal of Earth Sciences.
On April 15, 2016, Sprott marked the 20th anniversary of its PhD in Management program with a research symposium that showcased the work of students, faculty and alumni.

The program also featured two panel discussions.

Sprott PhD candidates Michael Halinski and Gregory Dole discussed their work with the Peel Regional Police on transorganizational system change to help individuals in mental health crisis and calculating the social return on investment in community policing respectively.

Joining them on the panel was Chris McCord, Deputy Chief of Police, Field Operations for Peel Regional Police and their supervisor Dr. Linda Duxbury.

In the second panel, Sprott Dean Jerry Tomberlin, PhD director Gerald Grant, Roy Suddaby from the University of Victoria and Wojtek Michalowski from the University of Ottawa reflected on the last 20 years and the future of the PhD.

"From the very outset the program focused on applying theoretical ideas in addressing complex management problems faced by organizations operating in a fast changing world," says Gerald Grant, director of Sprott’s PhD program. "The underlying interplay between theory and practice is demonstrated in where our graduates have decided to pursue careers; 56 of our graduates work in academia and 23 are in practice roles in both the private and public sectors."
FACULTY OF GRADUATE STUDIES AND POSTDOCTORAL AFFAIRS

VANIER SCHOLARSHIP AWARDED FOR POVERTY RESEARCH

Kathy Dobson, a doctoral candidate in communications, has been awarded a Vanier Scholarship in recognition for her research on poverty. The award is worth $50,000 per year for up to three years.

Dobson’s research examines how the poor are represented by social welfare and government agencies, as well as in the news and social media, and how these portrayals reinforce self-conceptions of those living in poverty.

“I think we need to stop blaming the poor for their own poverty and teach the poor to stop blaming themselves as well,” says Dobson.

Dobson also wrote a book, With a Closed Fist (Vehicule Press, 2011), that was nominated for a Governor General’s Award. She recently presented information in her book and her research on poverty at the 2016 How Class Works conference.

In addition to her Vanier award, Dobson was also awarded a Joseph–Armand Bombardier Canada Graduate Scholarship and an Ontario Graduate Scholarship.

FIRST COTUTELLE STUDENT GRADUATES AT FALL CONVOCATION 2015

Jason Crann, recipient of a Senate Medal for Outstanding Academic Achievement in 2014, was the first cotutelle student to graduate from Carleton University.

Cotutelle agreements allow PhD students to study and conduct research at two universities and, upon graduation, obtain two diplomas recognizing their PhD degree.

“I believe the cotutelle will generate a higher level of recognition for my research which will be beneficial down the road. As well, the exposure to a larger research community has given me several opportunities to present my research abroad and has helped establish international collaborators,” says Crann.

Crann studied at the University of Lille 1: Science and Technology where he participated in a unique mathematical physics working group, took two advanced courses and saw a research talk by a Nobel Laureate, all the while making advances in his own doctoral research.

There are 20 other cotutelle students at Carleton.
ABOUT CARLETON UNIVERSITY

Carleton University is a dynamic, research-intensive institution with a creative international approach to research that has led to many significant discoveries and works in science and engineering, business, public affairs and the arts. Home to many noted award-winning researchers, Carleton is uniquely committed to discovery, knowledge and understanding of the world around us.

Carleton University’s location in Ottawa – the nation’s capital allows unique access for our researchers across many disciplines to such places as Canada’s national labs and museums, Library and Archives Canada, federal government departments and, of course, Parliament Hill.

Through the building of sustainable communities, we foster new ideas to create a more prosperous future for Canada and the world.