

IDEAS INNOVATION IMPACT

2014-15 ANNUAL REPORT

**Ryerson
University**

**Office of the
Vice-President
Research & Innovation**



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MESSAGE FROM THE VICE-PRESIDENT, RESEARCH AND INNOVATION

I am delighted to share with you our 2014-15 annual report on Scholarly, Research and Creative (SRC) activity. The latest in a series of banner years, our research funding grew by 10% reaching an all time high of \$44.8 million. At a time when the average research growth is less than 1% per year across the system, Ryerson increased research funding by almost 60% in the past four years and was once again named one of Canada's Research Universities of the year by Research Infosource. Outstanding faculty, along with stellar students, often working in collaboration with non-profit, business, government and industry partners, have once again demonstrated that we can combine research excellence with relevance. And our Research Ethics Board (REB) has never been busier.

Support from the Social Sciences and Humanities Research Council (SSHRC) of Canada, Natural Sciences and Engineering Research Council of Canada (NSERC), and Canadian Institutes of Health Research (CIHR) has remained strong. This year Ryerson received its first two CIHR Team Grants, as well as two more Canada Research Chairs – one in Biomedical Science and Technologies and another in Cognitive Aging – bringing our total to 19. Faculty have received widespread recognition for their work, including three of our faculty, who were named to the Royal Society of Canada's inaugural College of New Scholars, Artists and Scientists, representing Canada's emerging generation of multidisciplinary leaders in their fields.

We sharpened our focus on interdisciplinary research themes that reflect the burning issues of this century – Digital Media and Technology; Energy and Sustainability; Health and Wellbeing; Technological and Industrial Innovation; City Building and Social Justice; Design, Culture and Creative Industries; Management, Entrepreneurship and Competitiveness; and Teaching and Learning for the New Economy – aligning with key government, industry and community priorities.

Ryerson continues to build Canada's innovation ecosystem and to drive economic development and job creation. Building on the success of our established incubator, the DMZ – recently ranked the

top university-based incubator in North America by UBI Global – the University has expanded its investments in commercialization, incubation, acceleration and innovation. Our new \$10.7 million federally funded Incubate Innovate Network of Canada (I-INC) with Simon Fraser University and the University of Ontario Institute of Technology (UOIT) is taking our efforts to the next level. We also received \$2 million in funding from Ontario's Campus Led Accelerator (CLA) program, expanding our capacity to support student entrepreneurs.

At Ryerson, innovation is not confined to technological or economic goals. We have mainstreamed innovation and changemaking across the University in every discipline. Contributions from the Ontario Government's Social Enterprise Demonstration Fund (SEDF), and the J.W. McConnell Family Foundation RECODE program supporting social innovation have helped level the playing field.

Almost half of our research funding supports students and we have continued to build programs, which provide experiential learning and applied research opportunities from Mitacs and the Ontario Centres of Excellence (OCE) among others.

This year also saw continued growth of our efforts internationally, with new and exciting partnerships with top-ranked institutions around the world. We have over 140 international partnerships across 36 countries, providing opportunities for faculty, students and entrepreneurs.

In short, there is much to celebrate. This report provides a glimpse into the diverse, vibrant, outstanding work our faculty and students are doing that is creating real change. And we know the best is yet to come!

Wendy Cukier, MA, MBA, PhD, DU (Hon) LLD (Hon) M.S.C. (civilian)

Vice-President, Research and Innovation, Ryerson University

RYERSON NAMED TOP UNDERGRADUATE RESEARCH UNIVERSITY OF THE YEAR

RESEARCH INFOSOURCE, 2014

\$44.8M

IN TOTAL RESEARCH FUNDING

98%

INCREASE IN FUNDING
FROM FOUNDATIONS
AND NON-PROFIT
ORGANIZATIONS



19
CANADA RESEARCH
CHAIRS (CRCs)



966
ACADEMIC
PUBLICATIONS



\$13.3M
OF TOTAL FUNDING
FROM THE TRI-COUNCIL
AGENCIES

52%

INCREASE IN RESEARCH FUNDING
FROM PROVINCIAL AGENCIES

194

LOCAL, NATIONAL AND GLOBAL
FUNDING PARTNERS

10%

INCREASE IN TOTAL
RESEARCH
FUNDING FROM
THE PREVIOUS YEAR

\$10.6M

IN FUNDING RECEIVED FROM OTHER
NON-GOVERNMENT SOURCES

10,302

CITATIONS OF RYERSON
RESEARCHERS BY OTHER
SCHOLARS



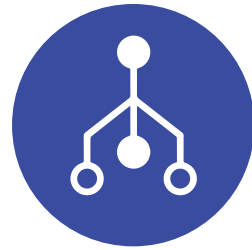
EXPANDING SCHOLARLY, RESEARCH & CREATIVE ACTIVITY

Our Scholarly, Research and Creative (SRC) activities are recognized for their comprehensive and collaborative approach. Ryerson University's faculty and students are forging paths in SRC excellence and enhancing our reputation nationally and abroad.

Ryerson University continued its success in research funding in 2014-15, once again surpassing the \$40 million mark in research. With an increase of 10% over the previous year, Ryerson, Canada's comprehensive innovation university, achieved a total research revenue of \$44.8 million.

Ryerson's eight SRC activity themes were established by the Office of the Vice-President, Research and Innovation in consultation with the Associate Deans of research.

These cross-disciplinary themes represent the University's SRC strengths, which align with key government, industry and community priorities.



DIGITAL MEDIA & TECHNOLOGY

Ryerson drives the development of digital media by creating new products, services and online tools.



ENERGY & SUSTAINABILITY

Ryerson leads the development of innovative technologies and processes to promote energy conservation and sustainability.

TOTAL RESEARCH FUNDING

\$44.8M IN TOTAL RESEARCH FUNDING
10% INCREASE IN TOTAL RESEARCH FUNDING FROM THE PREVIOUS YEAR

Ryerson research revenue once again surpassed the \$40 million mark in 2014-15, with the University receiving a total of \$44.8 million in research funding, which represents a 10% increase from 2013-14.

Ryerson received research funding from the federal Tri-Council agencies: Natural Sciences and Engineering Research Council of Canada (NSERC), Social Sciences and Humanities Research Council of Canada (SSHRC) and Canadian Institutes of Health Research (CIHR).

Ryerson boosted research growth by building on our partnerships with industry and community organizations, and by expanding investment from international agencies, non-government organizations, and foundations.

Ryerson research is supported through the contributions and investments of more than 194 local, national and global funding partners, including provincial agencies, international organizations, foundations, and industry.

Our funding allocation for graduate studies scholarships and postdoctoral fellowships continues to attract world-class faculty and high-caliber students to our research programs. Local and international researchers are coming to Ryerson to further their intellectual pursuits and scientific discoveries in a supportive, innovative setting. Ryerson is also bringing in top students who have chosen us for our experiential learning model and access to real-world, applied-research projects.



HEALTH & WELL BEING

Ryerson grapples with pressing problems in prevention, diagnosis and treatment. Researchers work across disciplines to improve lives.



TECHNOLOGICAL & INDUSTRIAL INNOVATION

Ryerson improves design and production processes, helping to drive the adoption of new technologies and promoting Canada's competitiveness in the international economy.



CITY BUILDING & SOCIAL JUSTICE

Ryerson shapes Canada's future on the world stage. Ryerson promotes inclusion and citizen engagement, driving economic growth and social innovation.



DESIGN, CULTURE & CREATIVE INDUSTRIES

Ryerson combines scholarly, research and creative practice to explore and produce culture.



MANAGEMENT, ENTREPRENEURSHIP & COMPETITIVENESS

Ryerson researchers are helping to ensure Canada's future economic prosperity by improving our understanding of entrepreneurial mindsets, small business growth and acceleration, and globalization.



TEACHING & LEARNING FOR THE NEW ECONOMY

Ryerson researchers are exploring new forms of pedagogy, teaching tools, strategies for inclusion, and innovative approaches to increasing the career success of our graduates.

TRI-COUNCIL FUNDING

\$6.9M RECEIVED FROM NSERC GRANTS

\$3.6M RECEIVED FROM SSHRC GRANTS

\$2.8M RECEIVED FROM CIHR GRANTS

The Tri-Council agencies remain the largest individual source of funding for Ryerson, with approximately \$13.3 million in research revenue received in 2014-15.

In 2014-15, Ryerson faculty received \$6.9 million from the Natural Sciences and Engineering Research Council of Canada (NSERC), a total of \$3.6 million in Social Sciences and Humanities Research Council of Canada (SSHRC) grants, and a total of \$2.8 million in Canadian Institutes of Health Research (CIHR) grants.

Ryerson has continued to maintain its Tri-Council market share, ensuring its access to certain programs such as Canada Research Chairs (CRCs) and the Canada Foundation for Innovation's Infrastructure funding.

Trevor Hart (Psychology) and Josephine Wong (Nursing) are the first Ryerson researchers to be awarded CIHR Team Grants.



Trevor Hart's team was awarded the CIHR Team Grant for their work with the Ontario HIV Treatment Network (OHTN) and the Canadian Foundation for AIDS Research (CANFAR), with funding awarded through the Boys' and Men's Health initiative.

Hart's work explores a policy of "treatment as prevention" for men who have sex with men, which could have profound implications for HIV prevention worldwide.

"Treatment as prevention" means that services seek and treat the most vulnerable HIV patients, offering antiretroviral therapy and expanding care to reduce the risk of infected individuals transmitting HIV. Hart's team will comprise the first national collaboration of researchers, public health workers, clinicians, and community-based organization leaders working on such a study in Canada. Their results will help to develop HIV prevention interventions that are rooted in Canadian data and tailored to the Canadian HIV epidemic.

CIHR Team Grants

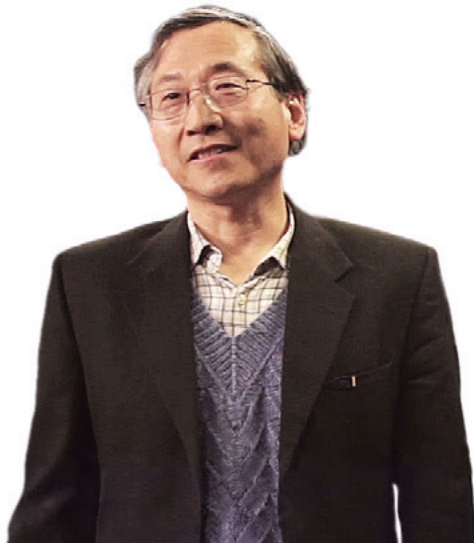


Josephine Wong's team was awarded the CIHR Team Grant for their work with the Ontario HIV Treatment Network (OHTN), with funding awarded through the Boys' and Men's Health initiative.

Wong's study targets heterosexual men who are African, Caribbean and Black. These men often do not seek access to HIV-related services due to self-blame or fear of being blamed, judged or stigmatized.

Stereotypes and negative assumptions about heterosexual Black men's sexuality have posed significant challenges to the development of effective, inclusive and accessible HIV responses that engage heterosexual Black men, especially men who are HIV-positive. Wong's study will seek to enhance HIV prevention messaging in target communities and strengthen African, Caribbean and Black men's involvement in community responses to HIV locally, provincially and nationally.

Tri-Council Highlights



Ling Guan (Electrical and Computer Engineering) received an NSERC Discovery Grant to create data analysis tools that will enable the development of state-of-the-art multimedia information processing systems. This new signal analysis technique has the capacity to account for multiple types of sensory data at once.

The technique has a range of applications, making possible new forms of media production and delivery with implications for the preservation of cultural heritage, infrastructure planning, e-health, and more.



Candice Monson (Psychology) received a CIHR Operating Grant to work with a team of American academics and researchers from Veterans Affairs Canada to investigate the use of cognitive-behavioral psychotherapies, such as Cognitive Processing Therapy (CPT), in the treatment of Post-Traumatic Stress Disorder (PTSD).

Monson's study will help inform how best to support the ongoing implementation of evidence-based psychotherapy for PTSD in routine clinical settings.



Jennifer Martin (Child and Youth Care) received a SSHRC Partnership Development Grant to help prevent the distribution of child sexual abuse images online (CSAIO). Partnering with local, national, and international experts, Martin is focusing on Ontario law enforcement and the Greater Toronto Area to improve services and advocacy for affected children.

This study will contribute critically needed Canadian data that can begin to inform legal, practical and theoretical understandings of CSAIO, revealing barriers to cross-sectoral work in the area.



Frank Russo (Psychology) was awarded an NSERC Collaborative Research and Development Grant with long-standing partner WaveDNA, a company that creates virtual instruments for songwriters, producers and composers.

Russo will help WaveDNA develop an unprecedented technology that will incorporate emotional feedback into the workflow of music composition. This technology will help musicians predict the emotional responses of listeners to their music as they are writing it.



Ivor Shapiro (Journalism) received a SSHRC Insight Grant to launch the first comprehensive study of Canadian journalists: what they think as well as the contexts, pressures, and constraints under which they work.

Through the study, Shapiro hopes to provoke a national conversation about the public understanding of the "business" of news. The study will engage with the public and journalists through an innovative program of presentations, workshops, newspaper articles, industry publications, and a radio documentary on the evolving identity of the journalist in society.



Stephen Waldman (Chemical Engineering) was awarded a CIHR Operating Grant to work with Toronto's Hospital for Sick Children and Sunnybrook Research Institute on the development of a promising new method for ear reconstruction using tissue-engineered cartilage constructs.

Waldman and his team will address this challenge—one of the most difficult in reconstructive surgery—by using 3D-printed molds to create fully functional, anatomically correct ears.

CANADA RESEARCH CHAIRS

\$1.6M IN FUNDING RECEIVED FOR THE CANADA RESEARCH CHAIR PROGRAM

Canada Research Chairs (CRCs) are allocated every two years based on a university's share of total Tri-Council funding over the three most recent years. Due to Ryerson's continued Tri-Council funding success, the University was allotted an increase in the number of CRCs in 2014-15. CRCs are among the world's most accomplished and promising researchers, making major contributions to the advancement of knowledge in engineering and the natural sciences, health sciences, humanities, and social sciences.

Through their research excellence, Ryerson's CRCs are making a positive impact on the socio-economic well-being of Canadians and advancing their fields of study internationally.

In total, Ryerson has 19 CRCs and received \$1.6 million in funding in 2014-15 for our CRC program based on our Tri-Council funding, which accounts for 3.6% of Ryerson's total research funding.

In 2014-15, Roberto Botelho (Chemistry and Biology) was awarded a Tier II CRC in Biomedical Science and Technologies, and Julia Spaniol (Psychology) was awarded a Tier II CRC in Cognitive Aging.

Other active CRCs at Ryerson in 2014-15 include:

Joseph Chow (Tier II, Transportation Systems Engineering)

Irene Gammel (Tier I, Modern Literature and Culture)

Ling Guan (Tier I, Multimedia and Computer Technology)

Michael Kolios (Tier II, Biomedical Applications of Ultrasound)

Sridhar Krishnan (Tier II, Biomedical Signal Analysis)

Krishna Kumar (Tier II, Space Systems Engineering)

Guangjun Liu (Tier II, Control Systems and Robotics)

Alexandra (Ali) Mazalek (Tier II, Digital Media and Innovation)

Catherine Middleton (Tier II, Communication Technologies in the Information Society)

Marcello Papini (Tier II, Abrasive Jet Technology)

Souraya Sidani (Tier I, Patient-Centered Health Interventions: Design and Evaluation)

Victor Yang (Tier II, Bioengineering and Biophotonics)



Roberto Botelho (Chemistry and Biology) was awarded Canada Research Chair (Tier II) in Biomedical Science and Technologies for his work investigating how cell organelles acquire, maintain, or change their identities, which are defined by their specific set of traits. This remains one of the fundamental unanswered questions of biology.

Botelho's work could lead to new diagnostics and therapies for diseases that arise from organelle defects and has the potential to significantly impact the treatment of diabetes, cardiovascular illness, cancer, and neurodegenerative diseases.



Julia Spaniol (Psychology) was awarded Canada Research Chair (Tier II) in Cognitive Aging for her exploration of the behavioural and biological changes that accompany loss of brain function with age.

Spaniol's work will pave the way for the development of training regimens to enhance everyday cognitive performance in older adults. Her findings will also help inform the design of real-world settings (e.g., healthcare, finance, transportation) in which the reduced cognitive capacity of older adults often puts them at a disadvantage.

MUNICIPAL, PROVINCIAL & OTHER FEDERAL NON TRI-COUNCIL FUNDING

\$7.8M RECEIVED IN NON TRI-COUNCIL FEDERAL FUNDING

\$6.7M RECEIVED IN PROVINCIAL FUNDING

Ryerson received \$6.7 million in research revenue from provincial agencies, representing a 52% increase and 15% of our total SRC funding. Ryerson was awarded Ontario Government funding from ministries such as the Ministry of Training, Colleges and Universities; the Ministry of Economic Development, Employment and Infrastructure; and the Ministry of the Environment; among others.

The Ontario Centres of Excellence (OCE) invested \$1.8 million in funding in Ryerson to help create jobs and drive prosperity in the province through industry research and development collaborations, representing an increase over 2013-14. This funding supported projects like the **Campus Linked Accelerator (CLA)**, which will be used to broaden the reach of entrepreneurial thinking and innovation across the university. Ryerson also received \$205,000 from municipal agencies to address city-specific needs.

A total of \$7.8 million from Federal non Tri-Council funding sources, such as **Grand Challenges Canada** and **International Science and Technology Partnerships Canada**, speak to Ryerson's growing research reputation and the impact that our researchers are having on solving both domestic and international problems.



Rafik Loutfy (Mechanical and Industrial Engineering) was awarded an International Science and Technology Partnerships Canada grant from the Ontario-India Research Collaboration Fund to automate key processes related to railway track operations. With partners Bombardier Transportation, IIT Kanpur, and IAITO Infotech, Loutfy is creating TrackSafe, an integrated railway monitoring system that leverages information technologies such as RFID.

This system will improve track-level operations by sending more accurate alerts to train drivers about the location of workers and analyzing the health of infrastructure to ensure proper maintenance.



Jason Nolan (Early Childhood Studies) was awarded a Grand Challenges Canada grant from the Stars in Global Health program, which will create a global network for adaptive design for children with cognitive and physical disabilities. Adaptive Design International will promote open-source adaptive designs for furniture using low-cost materials such as cardboard.

Collaborating with researchers in Bolivia and Ghana, this project will produce and distribute prototypes that can be customized to meet the needs of children with disabilities.



Kathryn Underwood (Early Childhood Studies) is working in partnership with the County of Wellington, Ontario, which is funding a study on the experience of disability in early childhood education and child services in the province.

Underwood is conducting interviews with families from rural, remote and urban communities to improve service in Wellington and other communities in Ontario.

INDUSTRY & OTHER NON-GOVERNMENT FUNDING

98% INCREASE IN FUNDING FROM
FOUNDATIONS & NON-PROFITS

\$10.6M RECEIVED FROM OTHER
NON-GOVERNMENT
SOURCES

Collaboration with government, industry and community partners is a vital part of Ryerson's research and innovation strategy. With the support of industry contracts and matched funding programs, our researchers are developing innovative products and processes with partners that can be commercialized to enrich the world around us.

In 2014-15, Ryerson received \$4 million from industry partners, including grants and contracts with business enterprises to undertake applied research projects.

Ryerson attracted significant research investments from non-profit organizations and foundations, receiving an unprecedented 98% increase in funding from these groups. With contributions from partners such as Maytree and the J.W. McConnell Family Foundation, Ryerson's total funding from other non-government sources was \$10.6 million in 2014-15.

These partnerships not only support applied research and societal improvement, but also contribute to Canada's HQP, helping to build the capacity of Ryerson's graduate students through exposure to existing business challenges and research and development opportunities, empowering them to become the next generation of problem solvers and leaders.

The Global Diversity Exchange (GDx) at Ted Rogers School of Management received funding from the J.W. McConnell Family Foundation and the Maytree Foundation to provide leadership and support for the DiverseCity onBoard project.

In a study conducted at Ryerson in 2009, it was determined that only 13% of leadership positions in the GTA were occupied by visible minorities as compared to a 49.5% share in the population. The DiverseCity onBoard project will work to bridge this diversity gap and will complement existing programs at the University, such as Cities of Migration, Hire Immigrants, and Flight and Freedom.



Ebrahim Bagheri (Electrical and Computer Engineering) was awarded an NSERC Collaborative Research and Development grant to develop the next generation of customer relations software. Collaborating with industry partner ThinkCX, Bagheri is creating software that can identify emerging trends among different communities on platforms like Twitter and Facebook.

The software will be able to predict the future needs and inclinations of users, which can be used by businesses to vastly improve the quality of their customer service.

Michael Kolios (Physics), with collaborators from Sunnybrook Hospital, was awarded a Terry Fox Research Institute grant from its New Frontiers Program to develop new imaging techniques that can be used to monitor and improve the efficacy of cancer treatments.

Combining ultrasound and photoacoustic imaging into a single technique, Kolios is creating a new method for detecting resistance to cancer therapy. By reducing the time it takes to analyze treatments from weeks to hours, this research will help doctors customize chemotherapy to improve cancer survival rates.

Dérick Rousseau (Chemistry) received a research grant from Concept Capital Management to build upon his past work with the company to develop more efficient sunscreen with higher SPF efficacy using fewer harmful chemicals in the formula.

By exploring how oil-soluble sunscreen can be incorporated into oleosomes—a natural delivery vehicle for various oil-soluble compounds—this research will result in better sun protection without the health hazards associated with present-day sunscreen products.

FACULTY AWARDS HIGHLIGHTS

External Awards

Ryerson researchers continue to be recognized for the positive impact of their SRC activity. Here are just a few examples of external honours and awards recognizing our accomplished faculty.

Ron Babin (Information Technology Management) received the Member of the Year award from the International Association of Outsourcing Professionals (IAOP).

Jean-Paul Boudreau (Psychology) was elected as one of eight new 2015 fellows to the Canadian Psychological Association, placing him among those who set new standards in the discipline.

Kathryn Church (Disability Studies) received the Ontario Confederation of University Faculty Association (OCUFA) Status of Women Committee's Award of Distinction.

Catherine Frazee (Disability Studies), one of Ryerson's professor emerita, has been named an Officer of the Order of Canada for her work with the Canadian Association for Community Living and the Council of Canadians with Disabilities.

Alan Fung (Mechanical and Industrial Engineering) received the 2014 Mitacs Award for Exceptional Leadership presented by the Honourable Ed Holder, Minister of State for Science and Technology.

Tom Griffin (Hospitality and Tourism Management) won the 2015 Travel and Tourism Research Association's Peter W. Williams (PhD) Award for the Advancement of Multi-Disciplinary Tourism Research.

Sri Krishnan (Electrical and Computer Engineering) has been named a fellow of the Canadian Academy of Engineering, one of the highest academic honours for professional engineers in Canada.

Gil Lan (Law and Business) received the Hoerber Memorial Award for Outstanding Article from the Academy of Legal Studies in Business and Editorial Board of the American Business Law Journal.

David Naylor (Mechanical and Industrial Engineering) was honoured with a prestigious Engineering Medal for Research and Development presented by the Ontario Society of Professional Engineers (OSPE) and Professional Engineers Ontario (PEO).

Ruth Panofsky (English) received the PROSE Award for Literature from the American Publishers Awards for Professional and Scholarly Excellence for "The Collected Poems of Miriam Waddington: A Critical Edition".

Vicki Van Wagner (Midwifery) received a Lifetime Achievement Award from the Association of Ontario Midwives for her influential role in facilitating midwifery regulation, the formation of the Association, and her continued involvement in Ontario's Midwifery Education Program.

Bin Wu (Electrical and Computer Engineering) was honoured with a prestigious Engineering Medal for Engineering Excellence presented by the Ontario Society of Professional Engineers (OSPE) and Professional Engineers Ontario (PEO).

Royal Society of Canada

The Royal Society of Canada was established in 1882 to foster Canadian research, mentor up-and-coming artists and academics, and advise Canadians and their government on matters of public interest. This year, the Royal Society named the members of its inaugural College of New Scholars, Artists and Scientists, which will represent Canada's emerging generation of multidisciplinary leaders in these fields. Three of Ryerson's researchers were named to the College's 2014 cohort.



Sepali Guruge (Nursing) was named for her internationally recognized studies on violence against women in Canadian immigrant communities.

As director of the Immigrant and Racialized Women's Health Project, her recent work addresses the complex intersections of immigration, gender, violence, and health from a global health perspective. Over the last five years, she has worked on related projects with colleagues in Sri-Lanka, Ethiopia, India, Brazil, the U.S., Belgium, Italy, and the U.K.



Alexandra Mazalek (Media) was named for her paradigm-shifting research that has brought the digital and physical realms closer together.

As Canada Research Chair in Digital Media and Innovation, her research is on the cutting edge of cognitive science, particularly in the field of human-computer interaction. She also experiments with new approaches to research, intermingling ideas from science, technology and design studies at her interdisciplinary Synaesthetic Media Lab.



Catherine Middleton (Information Technology Management) was named for her work addressing the impact of emerging technologies on global tech policy.

As Canada Research Chair in Communication Technologies in the Information Society, Middleton has sought to influence policy makers, organizations, and the media to create a truly digital society in Canada, where everyone has reliable access to the internet and other essential broadband services.

Internal Awards

UNIVERSITY-WIDE SRC AWARDS

Each year, the Ryerson community recognizes its researchers at its SRC Awards Luncheon. These awards acknowledge the diversity and range of SRC activity at Ryerson and commend the many contributions of our renowned faculty in different areas and at the various stages of their careers. The following recipients were recognized in 2014-15:

The Sarwan Sahota Ryerson Distinguished Scholar Award is presented each year to a Ryerson faculty member who has made an outstanding contribution to knowledge or artistic creativity in their area(s) of expertise – either through a long term, cumulative contribution or a single, particularly insightful or seminal idea, experiment, application or interpretation.

In 2014-15, the Sarwan Sahota Award was presented to two researchers: **Leslie Atkinson** (Psychology) for his exploration of how behaviour and biology are transmitted across generations, and **Krishna Kumar** (Aerospace Engineering) for developing the systems and technologies necessary to create innovative miniature satellites, wireless sensors, and novel means of spacecraft control and formation flying.

The Collaborative Research Award was presented to **Deborah Fels** (Information Technology Management) for her research on inclusive design to create new technologies such as enhanced emotive captioning, audio description, and multisensory displays for television, film, theatre, and mixed reality experiences.

The Social Innovation and Action Research Award was presented to **Andrew Millward** (Geography), who works to protect and enhance urban forests through innovation and outreach, such as mobile tools that heighten the social responsibility we feel toward city trees.

The Knowledge Mobilization and Engagement Award was presented to **Tara Collins** (Child and Youth Care), a champion of children's rights locally, nationally and globally who has worked hard to influence policymakers in Canada and beyond to uphold their commitments under the United Nations Convention of the Rights of the Child.

The **Early Research Career Excellence Award** was presented to **Ebrahim Bagheri** (Mechanical and Industrial Engineering) for striving to understand the underlying semantics of Big Data to build adaptive software systems that are able to self-reconfigure to changing environments and automatically react to undesirable situations.

DEANS' SRC AWARDS

Individual faculty members are also recognized through the Deans' SRC Awards for outstanding achievement in SRC activity, having made an impact within their disciplines during the previous academic year. The following are the recipients for 2014-15:

Faculty of Arts

Martin Antony (Psychology)
Amina Jamal (Sociology)
Eric de Noronha Vaz (Geography and Environment Studies)

Faculty of Communication and Design

Jeffrey Boase (Professional Communication)
Bruno Lessard (Image Arts)

Faculty of Community Services

Sepali Guruge (Nursing)
Jennifer Lapum (Nursing)
Raktim Mitra (Urban and Regional Planning)

Faculty of Engineering and Architectural Sciences

Habiba Bougherara (Mechanical and Industrial Engineering)
Sharareh Taghipour (Mechanical and Industrial Engineering)
Bo Tan (Aerospace Engineering)

Faculty of Science

Alexandre Douplik (Physics)
Marcos Escobar (Mathematics)

Ted Rogers School of Management

Rachel Dodds (Hospitality and Tourism Management)
Sari Graben (Law and Business)

INNOVATION, COMMERCIALIZATION & IMPACT

Ryerson SRC activity is leading the way in fuelling Canada's economic, social and cultural development.

Our focus on partnerships that support market-driven innovation has attracted international attention and has opened doors to new collaborations and opportunities. With this collaborative approach to innovation, Ryerson provides industry, government, and non-profit organizations with access to world-class expertise and facilities to improve businesses, policies, products and services.



FROM IDEA TO MARKETPLACE

**34 INVENTION DISCLOSURES
FILED IN 2014-15**

Home to a number of leading interdisciplinary research centres, institutes and innovation zones, Ryerson offers its partners expertise and resources at every step of the journey from idea to marketplace. Identifying and commercializing inventions ultimately supports our mission to contribute to the societal and economic benefit of Canada.

Invention disclosures are a measure of the number of potentially commercializable inventions arising from a university's research labs, and they comprise the first step in transferring research outcomes from the lab to the marketplace. The technologies and inventions that are described in disclosures are evaluated and protected with the goal of transferring the technologies into the marketplace through either licences or new company creation. In 2014-15, Ryerson researchers filed 34 invention disclosures, indicating the success of our added supports for faculty interested in commercializing their research.

Another way that Ryerson transfers knowledge is through collaboration with industry, non-profit, and government partners. Faculty and students are increasingly engaging with partners on innovative projects, from aircraft enhancements to ergonomics tools.



Colleen Carney (Psychology) led a multi-institutional research team in collaboration with insomnia experts and potential users to develop the Consensus Sleep Diary tool, which is being adopted as a new standard sleep diary in the field of insomnia research.

While researchers can use the tool for free, commercial users such as pharmaceutical companies have been licensing the tool for a fee to conduct drug studies.

Mark Towler (Mechanical and Industrial Engineering) and his postdoctoral student Declan Curran filed a patent in July 2015 for a device and method to detect monosodium urate deposits in the human body, which can be analyzed to diagnose various medical conditions such as gout.

This diagnostic innovation involves a simple external scan of a joint, replacing the current practice of withdrawing fluid from the joint using a long needle.

Jeff Xi (Aerospace) received an Ontario Aerospace R&TD Challenge grant from NSERC and the Ontario Centres of Excellence to design innovative aircraft cabin interiors.

Partnering with Bombardier Aerospace, and with in-kind contributions from Christie Digital, Xi is experimenting with new seat designs for commercial aircraft as well as interior structure, adaptive panels, lighting techniques, and climate control to create designs that minimize the weight of aircraft while enhancing passenger comfort.

CHAMPIONING ENTREPRENEURSHIP

Ryerson provides support and unique opportunities for up-and-coming innovators while advancing economic development through spin-off companies and job creation.

At Ryerson, we celebrate entrepreneurial spirit. The University has a mandate to engage 10% of students in entrepreneurial learning and experiences. Students, faculty and researchers all embrace experiential learning and adopt entrepreneurial approaches to developing innovative products and processes that are competitive in the global landscape.

Ryerson received funding from the Federal Government's **Canada Accelerator and Incubator Program (CAIP)** for the Zones of Incubation and Innovation Project – a national, research-driven incubator that will amplify the member universities' existing facilities to create an expansive technology, company and job-creation ecosystem. More than 130 companies received support services that include mentorship, workshops and access to business networks through Ryerson's CAIP funding.

The University also received funding from the Ministry of Economic Development, Employment and Infrastructure for its **Social Enterprise Demonstration Fund (SEDF)**. This will support the creation of an accelerator and funding program to develop social enterprises in the GTA that address equity and diversity, sustainability, education, poverty, access to health, and other key issues, with a focus on under-represented groups and youth facing barriers.

Ryerson continues to build the entrepreneurial pipeline by hosting **Ontario's Summer Company Program** that provides youth on their summer break with funding to initiate business ideas. Funded by the Ontario Ministry of Economic Development, Employment and Infrastructure, more than 50 youth aged 15-29 participated in 2014-15, an increase of 150% from 2013-14.

Social Innovation and Entrepreneurship

Ryerson is addressing real-world societal challenges by mainstreaming social innovation across the university to advance processes, products and services aimed at promoting social goals.

Ryerson is Canada's first Changemaker Campus as designated by Ashoka, a global community of action that works to increase the impact of social ventures. Ryerson students and faculty continue to challenge societal norms and create initiatives, processes, companies, and action to address the needs of community, both locally and beyond.

In November 2014, Ryerson was the recipient of a **RECODE Grant** from the J.W. McConnell Family Foundation to support social innovation research, student-based social innovation activities, and seed funding towards social enterprises. In 2014-15, 7 Ryerson Faculty members and 14 students received funds to support their research and initiatives.

Ryerson's **ADaPT** program is helping Social Sciences and Humanities (SSH) students excel in the labour market by providing them with advanced digital and professional skills, as well as internship opportunities to improve students' employment prospects after graduation. Ryerson received additional funding in 2014-15 to expand the ADaPT program.

Ryerson research also benefited from private sector benefactors. The Brookfield Partners Foundation was among Ryerson's most generous supporters in 2014-15, gifting the University with \$13 million in support to create the **Brookfield Institute for Innovation and Entrepreneurship** at Ryerson, and to fund innovation projects across the University.

KNOWLEDGE MOBILIZATION

Knowledge mobilization is an important and complex aspect of the research process that is essential to improving policies, services and communities. Impact on policy and society through the application of research is at the heart of Ryerson's mission to meet societal need. In 2014-15, the Faculty of Communication and Design's Centre for Communicating Knowledge was launched to provide knowledge mobilization services to faculty, foster active collaboration leading to greater impact, and to conduct research.



Idil Atak (Criminology) received a SSHRC Connection Grant to organize the 8th Annual Conference of the Canadian Association for Refugee and Forced Migration Studies (CARFMS) on "Advancing Protection and Fostering Belonging in a Global Era of the Criminalization of Migration".

The Conference addressed how Canada and other countries have resorted increasingly to criminal law measures to deter and punish migrants, especially irregular migrants, refugees, and other forced migrants.



Blake Fitzpatrick (Image Arts) received a SSHRC Connection Grant to organize a three-day symposium at Ryerson and Trent Universities. The symposium was structured around the concept of critical topography, or the way that we understand the relationships between "thought" and "place": how thought ranges over place and how it invents place.

Symposium panels covered a multidisciplinary range of topics, including residential schools in Canada, climate change, and civic participation.

PUBLICATIONS & CITATIONS

966 ACADEMIC PUBLICATIONS
IN 2014-15

10,302 CITATIONS OF RYERSON
RESEARCHERS BY OTHER
SCHOLARS

19% INCREASE IN CITATIONS
OVER THE PREVIOUS YEAR

Ryerson's publications and citations have continued to grow over the past year, once again revealing an upward trend in the University's research impact. Two indicators of Ryerson's successful knowledge mobilization performance are the total number of SRC publications produced by faculty members and the number of times they have been cited in other publications.

In 2014-15, Ryerson researchers produced 966 academic publications and our researchers were cited 10,302 times by other scholars.

NOTE: Academic publications include journal articles, conference papers and book reviews.
SOURCE: Web of Science, Thompson Reuters as of October 30, 2015.
Totals fluctuate as information is made available.

ADDITIONAL SCHOLARLY, RESEARCH & CREATIVE ACTIVITIES

SRC excellence is marked by more than just funding, partnerships, commercialization, and other economic performance metrics. Ryerson faculty are also committed to disseminating knowledge in both traditional and innovative new forms. The publication of books, the

delivery of performances, exhibitions across a wide range of media, and journalistic activity are among the many pursuits of Ryerson's faculty members. The following listings give an overview of just a few of the highlights.

BOOKS

Randy Boyagoda (English)	<i>Richard John Neuhaus: A Life in the Public Square</i>
Murray Pomerance (Sociology)	<i>MARNIE</i>
Alan Sears (Sociology)	<i>The Next New Left: A History of the Future</i>
Souraya Sidani (Nursing)	<i>Health intervention research: Advances in research design and methods</i>
Farzin Vejdani (History)	<i>Making History in Iran: Education, Nationalism, and Print Culture</i>
Henry Warwick (RTA School of Media)	<i>Radical Tactics of the Offline Library</i>

CREATIVE WRITING

Susan Cody (Professional Communications)	<i>"Help My Mastiff (Not My Business)"</i>
Kiaras Gharabaghi (Child & Youth Care)	<i>Apps for the postmodern child and youth care practitioner</i>
Thomas Heise (English)	<i>The Disquieting Muses</i>

EXHIBITIONS, INSTALLATIONS AND PERFORMANCES

Vincent Hui (Architectural Science)	<i>Stomata: Nuit Blanche 2014</i>
Ramona Pringle (RTA School of Media)	<i>Avatar Secrets Installation</i>
Nina-Marie Lister (Urban & Regional Planning)	<i>XING: (Re)Connecting Landscapes (2)</i>
Peggy Shannon (Theatre)	<i>Suppliant Women</i>
Don Snyder (Image Arts)	<i>60 Years of Marlboro Music: The Early Years</i>
Samantha Wehbi (Social Work)	<i>Everyday Activists</i>

FILM AND VIDEO

Gerda Cammaer (Image Arts)	<i>The B-Film Keeper</i>
Lynn Lavallée (Social Work)	<i>Telling A Different Story</i>
Joseph Medaglia (Fashion)	<i>The Body of Others</i>
Sean Wise (Entrepreneurship and Strategy)	<i>The Naked Entrepreneur</i>

JOURNALISM

Kamal Al-Solaylee (Journalism)	<i>Yemen Runs Through My Veins</i>
Tony Burman (Journalism)	<i>World yawns as Syria enters the dark ages: Burman</i>
Hayden King (Politics and Public Administration)	<i>Hayden King: First Nations crisis is about land. We need a new settlement</i>
Chris MacDonald (Law and Business)	<i>Canada should follow New York's crackdown on bogus herbal remedies</i>

SELECT CENTRES & INSTITUTES

Working closely with local and international partners, Ryerson's Centres and Institutes contribute to research across a wide range of disciplines, from innovations in 3D printing, to the development of sustainable urban infrastructure, to the exploration of law and justice in today's society. We have established several new centres in the past year to advance Ryerson's position as a leader in applied research in Canada.

These new centres and institutes include the **Centre for Communicating Knowledge (CCK)** (Faculty of

Communication and Design), which provides support to researchers and institutions for knowledge mobilization and scholarly communication; the **City Building Institute** (Faculty of Community Services), bringing together multidisciplinary perspectives to address critical urban problems; and **Ryerson Urban Water (RUW) Centre** (Faculty of Science), supporting healthy urban water while promoting innovation in water education.

Other centres and institutes at Ryerson include but are not limited to:

UNIVERSITY-BASED CENTRES AND INSTITUTES

Centre for the Study of Commercial Activity (CSCA)
Law Research Centre
Ryerson Centre for Immigration and Settlement (RCIS)

FACULTY OF ARTS

Centre for Digital Humanities (CDH)
Centre for Indigenous Governance
Institute for Stress and Wellbeing Research
Modern Literature and Culture Research Centre (MLC)
Psychology Research and Training Centre (PRTC)

FACULTY OF COMMUNICATION AND DESIGN

Centre for Communicating Knowledge (CCK)
Documentary Media Research Centre (DMRC)
Print Media Research Centre (PMRC)
Ryerson Journalism Research Centre
RTA Transmedia Centre

FACULTY OF COMMUNITY SERVICES

Centre for the Advancement of the Scholarship of Teaching & Learning (CASTL)
Centre for Global Health and Health Equity
Centre for Health in at Risk Populations (CHIRP)
Centre for Studies in Food Security
Centre for Urban Research and Land Development (CUR)
City Building Institute
Ryerson Centre for Children, Youth and Families

FACULTY OF ENGINEERING AND ARCHITECTURAL SCIENCE

Centre for Engineering Innovation & Entrepreneurship (CEIE)
Centre for Urban Energy (CUE)
Institute for Biomedical Engineering, Science and Technology (iBEST) with St. Michael's Hospital and Faculty of Science
Ryerson Institute for Aerospace Design and Innovation (RIADI)
Ryerson Institute for Infrastructure Innovation (RIII)

FACULTY OF SCIENCE

Institute for Biomedical Engineering, Science and Technology (iBEST) with St. Michael's Hospital and Faculty of Engineering and Architectural Science
Privacy and Big Data Institute
Ryerson Urban Water (RUW) Centre

TED ROGERS SCHOOL OF MANAGEMENT

Canada-China Institute for Business & Development (CCIBD)
Centre for Labour Management Relations (CLMR)
Centre for Voluntary Sector Studies (CVSS)
Diversity Institute (DI) and Global Diversity Exchange (GDH)
Entrepreneurship Research Institute (ERI)
Inclusive Media and Design Centre (IMDC)
Institute for Innovation and Technology Management (IITM)
Institute for the Study of Corporate Social Responsibility
Privacy and Cyber Crime Institute
Social Media Lab
Ted Rogers Institute for Hospitality and Tourism Research
Ted Rogers Leadership Centre

INNOVATION CENTRES

Incubate Innovate Network of Canada (I-INC)
Ryerson Centre for Cloud and Context-Aware Computing (RC4)

THE NEXT GENERATION



DEVELOPING TALENT

23 MITACS ACCELERATE

9 CONNECT CANADA

11 TALENTEDGE FELLOWSHIP

PROJECTS SPONSORED IN 2014-15

Ryerson is working with government, communities and industry to develop the next generation of highly qualified personnel (HQP) into future leaders in the private, public, and non-profit sectors.

We continue to attract top students who have chosen Ryerson for its experiential learning model. The University partners with government and industry to create meaningful experiences within our student research programs. Graduate students are expanding their research capacity under field experts and industry leaders, while our partner organizations gain from the valuable knowledge transfer that comes from student placements.

The University's innovative approach to education is ensuring that our students gain critical thinking, analytical, and practical skills that prepare them for future pursuits in research, entrepreneurship, or employment.

Mitacs is a non-profit organization that works with governments and universities across the country to develop research and training programs for industrial/social innovation, creating opportunities for graduate and post-doctoral fellows.

Connect Canada is the internship program managed by AUTO21 Inc., an organization that actively engages Canada's automotive sector in applied automotive R&D. They have created a national community of researchers who partner with automakers, parts and materials suppliers, and public sector organizations to support hands-on learning for students.

TalentEdge, administered by the Ontario Centres of Excellence (OCE), is a program that provides Ontario students and recent graduates with real-world experience working on collaborative industry-driven projects and is an integral component of Ontario's Youth Jobs Strategy.

STUDENT HONOURS & AWARDS

Ryerson University is committed to building our students' capacity in research and innovation through their involvement in SRC projects. The following is a sample of some of the SRC awards and grants received by Ryerson students in 2014-15.

Molecular Science Master's student **Omar Abdi** won the award for best presentation in Material Science at the 2014 Chemical Society of Canada conference in Vancouver, for his presentation titled "Synthesis and characterization of novel biochromic and bipedal dyes for dye-sensitized solar cells."

Molecular Science Master's student **Monica Dayam** was awarded the International Conference and Research Support Fund (ICRSF) award to attend the Federation of American Societies for Experimental Biology (FASEB) science conference, presenting "The role of PIKfyve in macrophages: Effect on phagosome maturation and endosomal system."

Hospitality and Tourism Management student **Quincia Gumbs** received the Baxter Travel Media's annual Responsible Travel and Tourism Forum Student Leadership Award, which recognizes the efforts of the next generation of travel professionals.

Computer Science Master's student **Ssowjanya Harishankar** won the Best Paper Award of the 29th IEEE International Conference on Advanced Information Networking and Applications (AINA-2015) held in Gwangju, Korea, for her paper "E-MANet: An ACO-Based Energy Efficient Routing Protocol for Mobile Ad Hoc Networks."

MBA Global Management student **Cara Kwok** won the Best Paper Award in the Health Care Management Division of the 2015 Administrative Sciences Association of Canada (ASAC) Conference in Halifax.

Social Work graduate **Teriano Lesancha** received the YWCA Young Woman of Distinction Award for her role in transforming the lives of young girls and women around the world.

Psychology graduate students **Jenny J.W. Liu, Vivian Huang** and **Katlyn Peck** won Best Symposium Award for their presentation, "The complex role of emotion in stress: A discussion of multiple approaches to understanding their relationship(s)," at the Psychology Outside the Box Conference.

A recent graduate of the Ryerson Public Administration and Governance program offered in partnership with the First Nations Technical Institute, **Athena Bedassigae-Pheasant**, won the Hydro One Award. She has previously worked in the justice sector at the Chiefs of Ontario secretariat.

Social Work graduate **Jake Pyne** is one of the 14 recipients of the prestigious Pierre Elliott Trudeau Foundation's 2014 Trudeau Scholarship to help him establish ways to support the parents, caregivers and health providers of transgender youth during their gender transition.

INTERNATIONAL ENGAGEMENT

- 237** INBOUND EXCHANGE STUDENTS FROM PARTNER INSTITUTIONS
- 217** OUTBOUND EXCHANGE STUDENTS FROM RYERSON
- 141** INTERNATIONAL PARTNERS ACROSS 36 COUNTRIES



Growing Global Networks

36 COUNTRIES

18 NEW INSTITUTIONAL AGREEMENTS SIGNED IN 2014-15

Ryerson's reputation for entrepreneurship and innovation has been instrumental in forming new partnerships in 2014-15. Ryerson's Internationalization Framework continues to engage countries of strategic importance to the University and to support the interests of students, faculty and other researchers.

We continue to build on relationships with our partners, collaborating with 141 international partners in 36 countries around the globe, including 18 new institutional agreements that were signed in 2014-15.

International collaboration contributes to Ryerson's global recognition, SRC capacity and new experiential learning opportunities for students.

This year, Ryerson announced a groundbreaking collaboration with the Bombay Stock Exchange Institute and the University of the Witwatersrand. This tripartite partnership will facilitate the global expansion of start-up companies from the DMZ, Zone StartUps India, and the Witwatersrand Tech Zone into new markets through joint ventures and soft landing programs, contributing to economic development in all three regions.

In June 2014, Ryerson welcomed an 11-person delegation from The Association of Southeast Asian Nations (ASEAN) – including the Indonesian Minister of Trade, the Cambodian Minister of Commerce, and the Laotian Minister of Industry – accompanied by the Honourable Minister Edward Fast (Canadian Federal Minister of Trade) to visit the Centre for Urban Energy (CUE) as an example of effective academic-industry partnerships.

An increasing number of faculty and students from other institutions are gaining insights from working with our researchers across disciplines. The University welcomed 80 research students and scholars in 2014-15.

Andrea Bellucci, a postdoctoral researcher at Universidad Carlos III in Madrid, spent seven months at Ryerson alongside **Alexandra (Ali) Mazalek** (Media) working with students and other postdocs on the research and design of tools that support cross-device/cross-platform development for physical/digital environments and applications.

Alejandra Culebro, a PhD Candidate from the University of Helsinki, spent three months at Ryerson working with **Warren Wakarchuk** (Chemistry and Biology), taking advantage of his expertise in GT-42 enzymes for inclusion in her PhD thesis, which led to a joint publication in a peer-reviewed journal.

Graduate students are contributing to Ryerson's profile in research excellence across the globe. In 2014-15, Ryerson students from a range of academic areas and teams from the MBA and Architecture programs presented their research at international conferences, achieving impressive results at prestigious international competitions.

David Colangelo, PhD student in Communication and Culture, presented two of his research-creation projects: In The Air Tonight, a project created for the LED facade of the Ryerson Image Arts Centre in Toronto, and E-TOWER, a project created for Toronto's CN Tower at the Media Architecture Biennale in Aarhus, Norway in October 2014.

Reyhaneh Nosrati, MSc student in Mechanical and Industrial Engineering, presented her work at the People and Buildings Conference in London, England in September 2014, focusing on Energy Consumption and Environmental Impact Assessment of the Energy Efficient Houses in Toronto, Canada.

Samira Zare Mohazabieh, MSc student in Biomedical Physics, presented her work on brain imaging using hyperspectral near-infrared spectroscopy at the SPIE Bios Conference in San Francisco, California in February 2015.

RESEARCH ETHICS BOARD

The Ryerson Research Ethics Board (REB) supports the advancement of our research programs by ensuring that researchers are informed of research ethics policies and are in compliance with federal guidelines.

The REB's review activities have increased as a result of the increased scope and complexity of research projects undertaken by Ryerson researchers.

RYERSON ETHICS BOARD MEMBERS 2014-15

Lynn Lavallée, Chair

Toni Fletcher, Research Ethics Coordinator (staff, non-voting)

Zakiya Atcha, Research Ethics Assistant Coordinator (staff, non-voting)

Patrizia Albanese, Yeates School of Graduate Studies

Stephen Want, Yeates School of Graduate Studies

Maureen Reed, Yeates School of Graduate Studies

Alexandra Fiocco, Faculty of Arts

Melanie Knight, Faculty of Arts

Bernie Murray, Faculty of Communication and Design

Joanne DiNova, Faculty of Communication and Design (aboriginal expertise)

Kristyn Scott, Ted Rogers School of Management

Asher Alkoby, Ted Rogers School of Management (legal expertise)

Sari Graben, Ted Rogers School of Management (legal expertise)

Chris MacDonald, Ted Rogers School of Management (ethics expertise)

Lori Schindel Martin, Faculty of Community Services

Calvin Langton, Faculty of Community Services

Raffi Karshafian, Faculty of Science

To be announced, Faculty of Engineering and Architectural Science

COMMUNITY MEMBERS

Brent Guilliard, Community Member (Urban Planner)

Scott Gavura, Community Member (Pharmacologist)

Dionisio Nyaga, Community Member (Social Work) (indigenous expertise)

Zakiya Atcha, Community Member (Social Work)

STUDENT MEMBERS

Amy Brown Bowers, Graduate Student

Sean Hillier, Graduate Student

Betina Borova, Undergraduate Student

Nazanin Ayon, Undergraduate Student

Joy Miclat, Undergraduate Student

THE SCHOLARLY, RESEARCH & CREATIVE ACTIVITY ADVISORY COMMITTEE

The Scholarly, Research and Creative (SRC) Activity Advisory Committee is the leading venue for discussion, advice and guidance on the strategic research issues and directions of Ryerson University. On behalf of the research enterprises across Ryerson, the SRC Activity Advisory Committee addresses all aspects of SRC activities including basic and applied research, knowledge translation, commercialization and industry. Members of the SRC Activity Advisory Committee also serve on the SRC Activity Standing Committee of the Senate.

Wendy Cukier

Vice-President, Research and Innovation

Anthony Bonato

Associate Dean, Yeates School of Graduate Studies

Gillian Byrne

Associate Chief Librarian

Charles Davis

Associate Dean, Faculty of Communication and Design

Michael Kolios

Associate Dean, Faculty of Science

Sri Krishnan

Associate Dean, Faculty of Engineering and Architectural Science

Janet Lum

Associate Dean, Faculty of Arts

Kelly MacKay

Associate Dean, Ted Rogers School of Management

Janice Waddell

Associate Dean, Faculty of Community Services

SELECT EXTERNAL RESEARCH FUNDING AWARDED IN 2014-15

The following is a list of some external research grants from major funding competitions awarded to Ryerson faculty in 2014-15. The list does not include sub-grants or awards that are not yet public. Available and announceable details, reported as of September 2015, are provided for the awards. For full details granted during the 2014-15 fiscal year, visit: ryerson.ca/research/2014-15awardlist/

NATURAL SCIENCES AND ENGINEERING RESEARCH COUNCIL OF CANADA

Collaborative Research and Development Grants

Ebrahim Bagheri (Electrical and Computer Engineering)	Semantics-enabled Social Network Analysis	\$450,000
Frank Russo (Psychology)	A dynamic emotion feedback system for music using audio, symbolic and physiological features	\$291,999
Fengfeng (Jeff) Xi (Aerospace Engineering)	Modular Reconfigurable Aircraft Cabin Interiors	\$200,000
Dewei (David) Xu (Electrical and Computer Engineering)	Advanced Thermal Management Technologies for the Next Generation Aerospace Power Converters	\$160,000
Ling Guan (Electrical and Computer Engineering)	An optimized cloud-based mobile augmented reality system for marketing and advertising	\$159,945

Discovery Grants

Ling Guan (Electrical and Computer Engineering)	Developing Information Theoretic Tools for Multimedia Multimodal Information Processing	\$185,000
Sridhar Krishnan (Electrical and Computer Engineering)	Non-stationary Signal Feature Extraction and Analysis	\$185,000
Jelena Mistic (Computer Science)	Resource management in cloud data-centers	\$180,000
Robert Botelho (Chemistry and Biology)	Regulation and Function of Phosphoinositide Lipid Signalling	\$170,000
Said Easa (Civil Engineering)	Advancing performance-based highway geometric design	\$170,000
Jeffrey Fillingham (Chemistry and Biology)	Transcriptional regulation of non-coding RNAs in Tetrahymena thermophila	\$170,000

Joseph McPhee (Chemistry and Biology)	Antimicrobial peptide resistance mechanisms in adherent-invasive Escherichia coli	\$160,000
Sarah Sabatinos (Chemistry and Biology)	Measuring the effect of environmental stress on checkpoint, genome instability and survival	\$160,000
Xiao-Ping Zhang (Electrical and Computer Engineering)	Signal and Data Processing Based on Statistical and Graphical Models	\$150,000
Ebrahim Bagheri (Electrical and Computer Engineering)	Dynamic Runtime Software Architecture Adaptation	\$145,000
Alexandra Mazalek (RTA School of Media)	Grasping Science: Designing Tangible and Embodied Interactions for the Computational Sciences	\$145,000
Fengfeng (Jeff) Xi (Aerospace Engineering)	Shape Adaptive Modular Reconfigurable Systems	\$145,000
Deborah Fels (Information Technology Management)	Inclusive media and design	\$140,000
Mohamad Jaber (Mechanical and Industrial Engineering)	Inventory management in sustainable closed-loop supply chains with continuous improvement	\$140,000
John Enright (Aerospace Engineering)	Attitude Estimation for Small, Agile Spacecraft	\$125,000
Zouheir Fawaz (Aerospace Engineering)	Experimentally validated models for the prediction of fatigue damage progression and failure of conventional and green polymeric composites in aerospace and biomedical applications	\$125,000
Stephanie Melles (Chemistry and Biology)	Cross-scale drivers of diversity in relation to global change in aquatic and terrestrial ecosystems	\$125,000
Vojislav Mistic (Computer Science)	Opportunistic spectrum access for emergency response networks	\$125,000
Ziad Saghir (Mechanical and Industrial Engineering)	Diffusion in Multi-component mixtures	\$125,000
Dewei (David) Xu (Electrical and Computer Engineering)	Next Generation Grid Connected Converters for Smart Grid	\$125,000
Olivia Das (Electrical and Computer Engineering)	Performance and Availability Evaluation of Software Systems	\$120,000
Mikhail Soutchanski (Computer Science)	A Principled Approach to Reasoning about Discrete Dynamic Systems	\$120,000
Ahmed Abdelrahman (Civil Engineering)	Development of innovative techniques for optical and LiDAR sensor data processing	\$110,000
Raffi Karshafian (Physics)	Interaction of ultra-sonically stimulated microbubbles with biological membranes	\$110,000
Karthikeyan Umamathy (Electrical and Computer Engineering)	Adaptive Signal Modeling and Feature Extraction Methods for Analyzing Cardiac Fibrillation	\$110,000
Shudong Yu (Mechanical and Industrial Engineering)	Modeling vibrational behaviour of non-smooth large scale dynamical systems	\$110,000
Janet Koprivnikar (Chemistry and Biology)	Host resistance and tolerance to parasitism: importance of behaviour and habitat in a changing world	\$105,000
Anthony Bonato (Mathematics)	Complex networks and vertex pursuit games	\$100,000
Robert Gossage (Chemistry and Biology)	Ligand Designs for Catalysis: New Directions for Green Chemistry	\$100,000
Hesham Marzouk (Civil Engineering)	Utilization of Ultra High Performance Concrete for Offshore Applications	\$100,000

Other NSERC Discovery grants were also received by the following faculty members: Chen (Cherie) Ding (Computer Science), Said Easa (Civil Engineering), Silvana Ilie (Mathematics), Andriy Miransky (Computer Science), Stephen Waldman (Chemical Engineering).

Idea to Innovation

Michael Kolios (Physics)	Development of an acoustic and photoacoustic flow cytometer	\$125,000
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Research Tools and Instruments

Scott Tsai (Mechanical and Industrial Engineering)	Microscopy system for microfluidics with integrated optical tweezers and high speed imaging	\$140,385
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Engage Grants

NSERC Engage grants were received by the following faculty members: Ahmed Abdelrahman (Civil Engineering), Alagan Anpalagan (Electrical and Computer Engineering), Ebrahim Bagheri (Electrical and Computer Engineering), Soosan Beheshti (Electrical and Computer Engineering), Ayse Bener (Mechanical and Industrial Engineering), Ying Jung (Joseph) Chow (Civil Engineering), Joon Chung (Aerospace Engineering), Konstantinos Derpanis (Computer Science), Alexandre Douplik (Physics), Seth Dworkin (Mechanical and Industrial Engineering), Xavier Fernando (Electrical and Computer Engineering), Alexander Ferworn (Computer Science), Alan Fung (Mechanical and Industrial Engineering), Mark Gorgolewski (Architectural Science), Ling Guan (Electrical and Computer Engineering), Martina Hausner (Chemistry and Biology), Siyuan He (Mechanical and Industrial Engineering), Khandaker (Anwar) Hossain (Civil Engineering), Darko Joksimovic (Civil Engineering), Mohammed (Reza) Kianoush (Civil Engineering), Farrokh Janabi-Sharifi (Mechanical and Industrial Engineering), Guang Jun Liu (Aerospace Engineering), Jinyuan Liu (Civil Engineering), Ali Miri (Computer Science), Farahnaz Mohammadi (Electrical and Computer Engineering), David Naylor (Mechanical and Industrial Engineering), Pawel Pralat (Mathematics), Kaamran Raahemifar (Electrical and Computer Engineering), Russell Richman (Architectural Science), Anton de Ruiter (Aerospace Engineering), Khaled Sennah (Civil Engineering), Medhat Shehata (Civil Engineering), James Smith (Electrical and Computer Engineering), Sharareh Taghipour (Mechanical and Industrial Engineering), Vladislav Toronov (Physics), Scott Tsai (Mechanical and Industrial Engineering), Ahmad Varvani-Farahani (Mechanical and Industrial Engineering), Warren Wakarchuk (Chemistry and Biology), Fengfeng (Jeff) Xi (Aerospace Engineering), Fei Yuan (Electrical and Computer Engineering), Lian Zhao (Electrical and Computer Engineering).

Other NSERC Grant Recipients

Other NSERC grants were also received by the following faculty members: Liping Fang (Mechanical and Industrial Engineering), Bryan Koivisto (Chemistry and Biology), Farrokh Janabi-Sharifi (Mechanical and Industrial Engineering), Hua Lu (Mechanical and Industrial Engineering), Frank Russo (Psychology), Balasubramanian Venkatesh (Electrical and Computer Engineering).

SOCIAL SCIENCES AND HUMANITIES RESEARCH COUNCIL OF CANADA

Insight Grants

Catherine Middleton (Information Technology Management)	Digital Canada: Understanding Canadian's infrastructure and literacy needs for engagement in digital society	\$210,139
Becky Choma (Psychology)	Ideological beliefs and differential distress: Threat target as a moderator	\$175,491
Ivor Shapiro (Journalism)	Mapping the professional orientation of Canadian Journalists	\$136,328
Paul Moore (Sociology)	Circuits of Cinema: Itinerant Showmanship in North America, 1895 to 1907	\$105,657

Partnership Development Grants

Kathryn Underwood (Early Childhood Studies)	Inclusive Early Childhood Service System Project	\$199,855
Kiaras Gharabaghi (Child and Youth Care)	Learning as Intervention	\$189,908
Jennifer Martin (Child and Youth Care)	Child Sexual Abuse Images Online: Identifying and Addressing Knowledge Gaps and Multilevel Barriers to Cross-sectoral Responses	\$142,707

Insight Development Grants

Insight Development grants were received by the following faculty members: Ben Barry (Fashion), Rachel Berman (Early Childhood Studies), Calvin Langton (Child and Youth Care), Osmud Rahman (Fashion), Kristin Smith (Social Work), Haomiao Yu (Economics), Zhixi Cecilia Zhuang (Urban and Regional Planning).

Connection Grants

SSHRC Connection grants were received by the following faculty members: Idil Atak (Criminal Justice and Criminology), Blake Fitzpatrick (Image Arts), Elizabeth McCay (Nursing), Daniel Rubenson (Politics and Public Administration).

Other SSHRC Grant Recipients

Other SSHRC grants were also received by the following faculty members: Wendy Cukier (Information Technology Management), Henry Parada (Social Work), Janice Waddell (Nursing).

CANADIAN INSTITUTES OF HEALTH RESEARCH

Team Grants

Trevor Hart (Psychology) *+	HIV Prevention for Gay and Bisexual Men: A Multisite Study and Development of New HIV Prevention Interventions	\$1,500,000
Josephine Wong (Nursing) *	Reducing HIV vulnerabilities and Promoting Resilience among self-identified heterosexual African, Caribbean and Black Men in Ontario	\$1,499,925

* In partnership with the Ontario HIV Treatment Network

+ In partnership with Canadian Foundation for AIDS Research

Operating Grants

Candice Monson (Psychology)	A comparison of the effects of internet-based strategies to support mental health clinicians' use of an effective psychotherapy for post-traumatic stress disorder	\$728,496
Stephen Waldman (Chemical Engineering)	Tissue engineering of auricular cartilage implants for external ear reconstruction	\$339,992
Zahava Rosenberg-Yunger (Health Services Management)	Development and Assessment of an Instrument for Evaluating Public and Patient Involvement in Resource Allocation Decisions	\$161,980

CANADA RESEARCH CHAIRS

Robert Botelho (Chemistry and Biology)	Tier 2 Canada Research Chair in Biomedical Science and Technologies	\$500,000
Julia Spaniol (Psychology)	Tier 2 Canada Research Chair in Cognitive Aging	\$500,000

OTHER FEDERAL GOVERNMENT

Grand Challenges Canada – Stars in Global Health

Jason Nolan (Early Childhood Studies)	Adaptive Design International: a global social network for the construction of low-cost custom adaptations for children with disabilities	\$112,000
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NCE: AUTO21 Inc. Connect Canada Internships

NCE: AUTO21 Inc. grants were received by the following faculty members: Soosan Beheshti (Electrical and Computer Engineering), Nick Bellissimo (School of Nutrition), Daolun Chen, (Mechanical and Industrial Engineering), Alan Fung (Mechanical and Industrial Engineering), Aziz Guergachi (Information Technology Management), Farrokh Janabi-Sharif (Mechanical and Industrial Engineering), Lev Kirischian (Electrical and Computer Engineering), Matthew Kyan (Electrical and Computer Engineering), Songnian Li (Civil Engineering), Rafik Loutfy (Mechanical and Industrial Engineering), Patrick Neumann (Mechanical and Industrial Engineering), Russell Richman (Architectural Science), Medhat Shehata (Civil Engineering), Phillip Walsh (Management and Entrepreneurship), Bin Wu (Electrical and Computer Engineering).

Other Federal Government Grants

Other federal government grants were also received by the following faculty members: Tuna Baskoy (Politics and Public Administration), Daolun Chen (Mechanical and Industrial Engineering), Patrice Dutil (Politics and Public Administration), Deborah Fels (Information Technology Management), Judy Finlay (Child and Youth Care), George Kapelos (Architectural Science), Janet Koprivnikar (Chemistry and Biology), Andrew Millward (Geography), Madhura Mitu Sengupta (Politics and Public Administration), Ratna Omidvar (Ted Rogers School of Management).

ONTARIO GOVERNMENT & MUNICIPAL GOVERNMENTS

Ontario Centres of Excellence – Ontario Aerospace R&TD Challenge

Fengfeng (Jeff) Xi (Aerospace Engineering)	Modular Reconfigurable Aircraft Cabin Interiors	\$100,000
Dewei (David) Xu (Electrical and Computer Engineering)	Advanced Thermal Management Technologies for the Next Generation Aerospace Power Converters	\$80,000

Other OCE grants were also received by the following faculty members: Mohammad Abdoli-Eramaki (Occupational and Public Health), Abdolreza Abhari (Computer Science), Ron Babin (Information Technology Management), Soosan Beheshti (Electrical and Computer Engineering), Ying Jun (Joseph) Chow (Civil Engineering), Linying Dong (Information Technology Management), Alan Fung (Mechanical and Industrial Engineering), Mohammed (Reza) Kianoush (Civil Engineering), Matthew Kyan (Electrical and Computer Engineering), Songnian Li (Civil Engineering), Rafik Loutfy (Mechanical and Industrial Engineering), Ali Miri (Computer Science), Patrick Neumann (Mechanical and Industrial Engineering), Pawel Pralat (Mathematics), Kaamran Raahemifar (Electrical and Computer Engineering), Ramani Ramakrishnan (Architectural Science), Derick Rousseau (Chemistry and Biology), Ziad Saghir (Mechanical and Industrial Engineering), Medhat Shehata (Civil Engineering), Lian Zhao (Electrical and Computer Engineering).

Other Ontario Government Grant Recipients

Other Ontario government grants were also received by following faculty members: Ministry of the Environment — Michael Arts (Chemistry and Biology), Rachel Dodds (Hospitality and Tourism Management), Lynda McCarthy (Chemistry and Biology); Ministry of Research and Innovation — Bryan Koivisto (Chemistry and Biology); Ministry of Training, Colleges and Universities — Harald Bauder (Geography), Kathryn Underwood (Early Childhood Studies).

Municipal Grants

Kathryn Underwood (Early Childhood Studies)	County of Wellington — Inclusive Early Childhood Service System	\$198,634
Wendy Cukier (Information Technology Management)	Regional Municipality of Peel — Academic Research and Study of Social Mobility in Peel	\$165,000

Other municipal government grants were received by the following faculty members: City of Hamilton; City of Toronto; District of Timiskaming Social Services — Kathryn Underwood (Early Childhood Studies).

INSTITUTIONAL GRANTS

National Research Council Canada – Industrial Research Assistance Program (NRC-IRAP) – Canada Accelerator and Incubator Program (CAIP)

Incubate Innovate Network of Canada (I-INC)	\$10,662,891
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J.W. McConnell Family Foundation – RECODE – Fuelling Social Innovation and Entrepreneurship in Higher Education

RECODE at Ryerson	\$500,000
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Ontario Ministry of Economic Development, Employment and Infrastructure – Social Enterprise Demonstration Fund

Social Enterprise Demonstration Fund at Ryerson	\$500,000
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NON-PROFIT ORGANIZATIONS & FOUNDATIONS

International Science and Technology Partnerships Canada Inc.

Rafik Loutfy (Mechanical and Industrial Engineering)	Design support system to enhance safety of railway track workers	\$211,990
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J.W. McConnell Family Foundation

Ratna Omidvar (Ted Rogers School of Management)	DiverseCity onBoard National Dissemination	\$275,000
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Ratna Omidvar (Ted Rogers School of Management)	hireimmigrants.ca	\$150,000
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Maytree Foundation

Wendy Cukier (Information Technology Management)	Inclusion of Immigrants and Racialized Minorities, in Toronto and Worldwide	\$1,735,343
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Ratna Omidvar (Ted Rogers School of Management)	DiverseCity onBoard	\$294,336
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Terry Fox Research Institute

Michael Kolios (Physics)	Project Grant in Ultrasound and MRI for Cancer Therapy	\$441,032
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The Scottish Rite Charitable Foundation of Canada

Karen Milligan (Psychology)	Using Mindfulness to Address Cognitive Processing and Emotion Regulation Challenges in Youth with Learning Disabilities	\$105,811
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Mitacs Inc.

Mitacs Inc. grants were also received by the following faculty members: Ron Babin (Information Technology Management), Ayse Bener (Mechanical and Industrial Engineering), Cheri Bradish (Marketing), Wendy Cukier (Information Technology Management), John Enright (Aerospace Engineering), Jeffrey Fillingham (Chemistry and Biology), Daniel Foucher (Chemistry and Biology), Alan Fung (Mechanical and Industrial Engineering), Ken Grant (Management and Entrepreneurship), Aziz Guergachi (Information Technology Management), Darko Joksimovic (Civil Engineering), Mohammed (Reza) Kianoush (Civil Engineering), Matthew Kyan (Electrical and Computer Engineering), Jason Lisi (Graphic Communications Management), Jinyuan Liu (Civil Engineering), Hesham Marzouk (Civil Engineering), Andriy Miransky (Computer Science), Ojelanki Ngwenyama (Global Management Studies), Corinne Ong (Occupational and Public Health), Kaamran Raahemifar (Electrical and Computer Engineering), Colin Ripley (Architectural Science), Alireza Sadeghian (Computer Science), Norman Shaw (Retail Management), Kernaghan Webb (Law), Bin Wu (Electrical and Computer Engineering), Fengfeng (Jeff) Xi, (Aerospace Engineering), Dewei (David) Xu (Electrical and Computer Engineering).

Other Not-for-Profit and Foundation Grant Recipients

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INDUSTRY FUNDING

Ratna Omidvar (Ted Rogers School of Management)	National Replication of DiverseCity onBoard with TD Bank Group	\$250,000
Ebrahim Bagheri (Electrical and Computer Engineering)	Semantics-enabled Social Network Analysis with ThinkCX Technologies Inc.	\$230,000
Mohamed Lachemi (Civil Engineering)	Numerical investigation	\$174,000
Frank Russo (Psychology)	A dynamic emotion feedback system for music using audio, symbolic and physiological features with waveDNA	\$146,001
Derick Rousseau (Chemistry and Biology)	A mechanistic understanding of oleosome stability and loading applications with Concept Capital Management	\$143,000
Fengfeng (Jeff) Xi (Aerospace Engineering)	Modular Reconfigurable Aircraft Cabin Interiors with Bombardier Inc.	\$100,000

Industry funding was also received by the following faculty members: Mohammad Abdoli-Eramaki (Occupational and Public Health), Ron Babin (Information Technology Management), Soosan Beheshti (Electrical and Computer Engineering), Ayse Bener (Mechanical and Industrial Engineering), Imogen Coe (Chemistry and Biology), Wendy Cukier (Information Technology Management), Zouheir Fawaz (Aerospace Engineering), Deborah Fels (Information Technology Management), Alexander Ferworn (Computer Science), Alan Fung (Mechanical and Industrial Engineering), Aziz Guergachi (Information Technology Management), Farrokh Janabi-Sharifi (Mechanical and Industrial Engineering), Mohammed (Reza) Kianoush (Civil Engineering), Songnian Li (Civil Engineering), Yuanshun Li (Finance), Jason Lisi (Graphic Communications Management), Hua Lu (Mechanical and Industrial Engineering), Kaamran Raahemifar (Electrical and Computer Engineering), Russell Richman (Architectural Science), Khaled Sennah (Civil Engineering), Medhat Shehata (Civil Engineering), Balasubramanian Venkatesh (Electrical and Computer Engineering), Warren Wakarchuk (Chemistry and Biology), Philip Walsh (Management and Entrepreneurship), Bin Wu, (Electrical and Computer Engineering), Fengfeng (Jeff) Xi (Aerospace Engineering), Dewei (David) Xu, (Electrical and Computer Engineering), Fiona Yeudall (School of Nutrition), Xianxun (Arnold) Yuan (Civil Engineering), Xiao-Ping Zhang (Electrical and Computer Engineering), Lian Zhao (Electrical and Computer Engineering).

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**Office of the Vice-President,
Research & Innovation**

Ryerson University
350 Victoria Street
Toronto, Ontario, M5B 2K3

www.ryerson.ca/research
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