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Peak Scholars in Entrepreneurship, Innovation & Knowledge Engagement

2018 Scholars

On November 13 2018, President and Vice-Chancellor Elizabeth Cannon & Vice-President (Research) Ed McCauley, hosted the 2018 Peak Scholars Celebration Luncheon. Scholars were nominated by their Deans to be recognized for their achievements in entrepreneurship, innovation, and knowledge engagement where their academic work has had an impact outside of the academy; including community and knowledge engagement, entrepreneurship, tech transfer, innovation, and collaborative research, resulting in a positive social or economic impact in our communities.

Innovate Calgary joined the celebration to recognize individuals who received patents between 2017–2018.

2018 Nominated Peak Scholars

Susan Graham, Faculty of Arts, Professor

Engaging Early Language Acquisition to Support Healthy Child Development

In Canada, 25% of kindergarten children have difficulty in at least one of five key developmental domains prior to entering Grade 1. These early-emerging developmental issues are often long-lasting and have cascading effects over development. Dr. Graham's research program examines child development during the infancy and preschool years with specific focus on delineating the interactive trajectories of early language, cognitive, and social-cognitive development. Understanding how linguistic, social, and cognitive abilities work together to shape children's development leads to a greater understanding of how typical development unfolds and has the potential to lead to more reliable identification of those children who are at high risk for cognitive and language problems.

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Ronald D. Kneebone, Faculty of Arts, Professor

Public Policy Solutions to Homelessness

My research into public policies associated with the social problems of homelessness and poverty has involved establishing relationships with social agencies in Calgary and with relevant government ministries at both the federal and provincial levels of government. This approach recognizes that developing practical and useful government policy interventions requires the close collaboration of the community level agencies working most closely with people impacted by homelessness and poverty, governments with the responsibility for implementing polices, and an independent arms-length research team able to fairly assess policy options.

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Jennifer Leason, Faculty of Arts, Assistant Professor

Education for Reconciliation

Professor Leason has been nominated for her work in Truth and Reconciliation. In addition to her multifaceted, interdisciplinary research, teaching and service that span local, provincial, national and international Indigenous communities, her education for reconciliation experiential learning exercise has been transformational. The exercise, which has been conducted across Canada has improved lives by transforming participant's capacity for intercultural understanding, empathy, and mutual respect for Indigenous peoples (TRC, 2015: p. 7, #62–63 iii); and skills-based training in intercultural competence, conflict resolution, human rights and anti-racism (TRC 2015, p. 3, #24).

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Marie-Claire Arrieta, Cumming School of Medicine, Assistant Professor

A Healthy Microbiome During Childhood Fosters Lifelong Health

Dr. Marie-Claire Arrieta is an assistant professor at the Departments of Physiology & Pharmacology and Pediatrics at the University of Calgary (since Sept 2016). Research from Dr. Arrieta concerns both basic and applied aspects of gastrointestinal immunophysiology and microbiology, as well as symbiotic host-microbial interactions in the vertebrate gut. Her work has significantly advanced our knowledge on the microbiome influence on asthma development. She demonstrated that gut microbial alterations are not only associated with subsequent asthma risk in human infants, but also causally implicated in disease in a relevant animal model, demonstrating —for the first time—a causal association between the gut microbiome and asthma.

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Fiona Costello, Cumming School of Medicine, Associate Professor

Innovations in Biomarker Development: Multiple Sclerosis Research and Clinical Care

Dr. Costello has pioneered the establishment of optical coherence tomography (OCT) as a novel biomarker in multiple sclerosis research and clinical care. Over the past decade, her research has highlighted the utility of OCT in quantifying the extent of brain injury in multiple sclerosis patients. Dr. Costello has distinguished herself as an international leader in her field, and identified the University of Calgary as an institution committed to advancing the role of vision research.

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Bin Hu, Cumming School of Medicine, Professor

Canadian Ambulosono Project

An innovative non-pharmaceutical therapeutic program for Parkinson's disease. The Ambulosono Project has now been introduced in six countries, helping many patients improve their quality of life. The project has spurred many international collaborations and innovative activities in academic medicine, technological development, student training, public education, and community engagement and commercialization. Ambulosono Project has been cited by Canadian governments and funding agencies as an exemplary case in translational neuroscience research.

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Deborah Kurrasch, Cumming School of Medicine, Associate Professor

Drug Screening for the Treatment of Refractory Pediatric Epilepsies

Dr Kurrasch's lab has developed a novel drug screening platform that uses zebrafish to uncover therapies for children with epilepsy who fail to respond to current medications. Their top drug is in clinical trials in Dravet syndrome patients at Alberta Children's Hospital and they are currently validating other lead candidates. Dr Kurrasch is a co-founder and CEO of Path Therapeutics, a biotech company that develops drugs for rare, pediatric epilepsies.

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Irene Wai Yan Ma, Cumming School of Medicine, Associate Professor

Integrating Point-of-Care Ultrasound into the Practice and Education of Medical Residents

One of the most transformative technologies introduced to clinical medicine is the use of point-of-care ultrasound (POCUS) at the bedside. POCUS allows safer procedures and augments the physical examination by directly visualizing bedside findings. Our team has created an evidence base in support of its use and defined educational elements and education indicators for internal medicine locally and nationally, laying the foundation for responsibly integrating new technology to clinical medicine.

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Deborah A. Marshall, Cumming School of Medicine, Professor

Patient Preferences and Engagement of Patients in Research

Patient preferences is about understanding the needs and values of patients and making them an integral part of clinical practice and service planning. Patient engagement is enabling individuals to gain knowledge about their condition and treatment options, to take an active role in managing and treating their condition, and to influence medical practice and policy.

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Naweed I. Syed, Cumming School of Medicine, Professor

Brain-Chip Interfacing Technologies

Dr. Syed's team is the first to develop a true bionic hybrid whereby neurons in culture, brain slices and intact brain of freely behaving animals have been directly interfaced with the electronic chip. This technological breakthrough has tremendous implications for exploring brain function - to repair damaged brain tissue and to develop future brain controlled prosthetic devices. In addition, Dr. Syed has also been the recipient of Canada-150 Medal by the Senate of Canada and the University of Calgary Faculty Association for his outstanding community services.

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James A. White, Cumming School of Medicine, Associate Professor

Standardized Diagnostic Phenotyping for Personalized Healthcare

Dr. White's is Director of the Stephenson Cardiac Imaging Centre at the Libin Cardiovascular Institute. His research is focussed on patient-specific risk models for the prediction of cardiovascular outcomes, such as sudden cardiac death and heart failure. He is pioneering the generation of data-driven models using standardized data from diagnostic tests, inclusive of cardiac imaging, to provide patients a more accurate and individualized way to estimate risk and to guide their care decisions. He is Co-founder and Chief Medical Officer of Cohesic, a rapidly growing software company delivering cloud-based solutions to bridge hospitals, researchers and healthcare industry partners to collectively discover new ways to deliver precision medicine.

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Alice de Koning, Haskayne School of Business

Excellence in Entrepreneurship Education

Dr. de Koning has lead the effort to design and implement a new entrepreneurship curriculum for all university students. The goal of the entrepreneurship programming is to create a combination of rigorous university courses and a wide variety of non-curricular activities, encouraging students to construct their education in entrepreneurship to fit their personal goals and passions. Her contribution emphasizes experiential learning, community engagement, and interdisciplinary approaches.

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Emily Laidlaw, Faculty of Law, Associate Professor

Technology and Intermediaries

Dr. Laidlaw's research on technology intermediaries examines the role of private companies as regulatory middlemen between technology and users, in particular the impact of intermediation on freedom of expression and privacy. Dr. Laidlaw translates her research into action through law reform. She is advisor to various projects, including the Law Commission of Ontario on defamation law and the Uniform

Law Conference of Canada on non-consensual sharing of intimate images. Her current SSHRC funded project seeks to reform the tort of privacy to address online abuse and technology.

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Dawn Kingston, Faculty of Nursing, Associate Professor

HOPE Digital Platform Supporting e-Mental Health - A First in Canada

The HOPE Digital Platform is a model of universal mental healthcare. Built on an e-technology backbone, this virtual single-point access to mental healthcare is being trialled in pregnant and postpartum women across all five zones in Alberta. Like a doorway into a mental healthcare system, women can access e-screening, e-referral, and e-therapy - anytime, anywhere.

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Paul Barclay, Faculty of Science, Associate Professor

Quantum Nanophotonics

Creating photonic devices that connect light to nanomechanical and nanoelectronic systems whose behaviour is governed by the laws of quantum mechanics, in order to realize sensors that detect forces and fields with record precision, implement systems for secure communication and computing, and advance the state-of-the-art of nanofabrication.

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Belinda Heyne, Faculty of Science, Associate Professor

Innovations in Light Activated Materials

Dr. Heyne's research investigates a wide range of topics wherein ambient light is used as a powerful tool to solve relevant industry and societal problems, including the current antibiotic resistance crisis. Her basic and applied research has been done with an eye towards improving cleaning practices in health-care, food and agricultural industries, and towards knowledge engagement with the province and the forestry industry in Alberta leading to disruptive innovations adding economic value to abundant biomass resources.

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Lora Oehlberg, Faculty of Science, Assistant Professor

People-Centered Technology for Creativity and Collaboration

Dr. Oehlberg's research examines how new technologies can augment human creativity and facilitate collaboration, expression, and innovation. Her human-centered approach learns from and works alongside creative communities – from open-hardware communities and interaction designers, to electronic fashion designers and improvisational actors – to tailor new collaboration and design tools that support real-world creative practices. She leads the the Curio Lab and is one of the faculty leaders of the Interactions Lab (iLab), the Human-Computer Interaction research group at Calgary. She is a faculty member in the Computational Media Design (CMD) program, and an affiliate faculty member at the Ward of the 21st Century (W21C).

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Cathy Ryan, Faculty of Science, Professor

Community-Driven Water Research Program

Cathy Ryan's research interest are focussed around issues identified by a range of stakeholder communities that range from understanding the origin of locally weak (and unfarmable) areas of Alberta soils called 'soapholes', ground contribution to the Elbow River (which supplies 45% of Calgary), groundwater supply prospects for a desert region in Peru under an agro-export boom, and the implications of free-phase gas transport in the subsurface (both as the driving force behind geyser activity and stray methane gases around leaky petroleum wells). Dr. Ryan also works with local agencies, including APEGA, Parks Canada, the Alberta Energy Regulator, and Alberta Environment and Parks.

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Anatoliy Swishchuk, Faculty of Science, Professor

Financial Mathematics and Energy Finance Seminar 'Lunch at the Lab'-14 Years and On

In these positions as Co-Director and now Director of the Mathematical and Computational Finance Lab, and the creator, organizer and coordinator of Financial Mathematics and Energy Finance seminar 'Lunch at the Lab' for 14 years, Dr. Swishchuk was and is facilitating not only new research developments in financial mathematics and energy finance, but is also providing training of numerous HQP, and is developing new technologies with particular emphasis on energy and financial markets, working with academic and industrial partners to serve the needs of the community.

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David Este, Faculty of Social Work, Professor

We are the Roots: Black Settlers and Their Experiences of Discrimination on the Canadian Prairies

Working with Deborah Dobbins, President of the Shiloh Community Multicultural Roots (Edmonton) and Dr. Jenna Bailey, University of Lethbridge, "We Are The Roots" explores the experiences of 1500 African Americans who migrated and settled in Alberta and Saskatchewan between 1905-1912. The film is seen the lens of interviews conducted with 19 descendants of those black settlers.

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Linda Kreitzer, Faculty of Social Work, Professor

Social Work in Africa: Exploring Culturally Relevant Social Work Education and Practice

Dr. Kreitzer's work in Africa began when she was a volunteer teaching social work in Ghana in 1994. Through this experience she critically explored what kind of curriculum was being taught in Ghana through her PhD work. From this work she became involved in this important discussion throughout all of English speaking Africa attending conferences and participating in workshops with social work colleagues and students. She also found unique and unheard of Association of Social Work Education in Africa (ASWEA) documents from 1973-1990 that are records of debates on this subject by African social work educators. These 20 documents are now online, in DVD form and hard copies were presented, in person, to many African social work programs from 2000-2010. Her book "Social work in Africa: Exploring culturally relevant Education and Practice in Ghana" is used by many social work programs in Africa as well as around the world to challenge educators and practitioners as to how to teach and practice social work in a culturally appropriate way.

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Michael (Mishka) Lysack, Faculty of Social Work, Professor

Innovative Leadership for Renewable Energy Economy and Climate Protection

Since 2008, Dr. Michael (Mishka) Lysack has been bringing effective sector leaders from Germany, US, and UK to Canada to mentor and build capacity among their Canadian counterparts for innovative social/environmental leadership. These sector leaders mentor their Canadian counterparts in problem-solving barriers and generating innovative solutions to advance/accelerate a renewable energy transition, sustainable economy, and climate protection in Canada. Through partnerships with the German Embassy, UK High Commission and US institutes, Dr. Lysack has made these sector leaders available to Canadian universities/researchers, government/political leaders, business, NGOs/civil society, and media in 6 cities: Calgary, Ottawa, Toronto, Edmonton, Vancouver, and Victoria.

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Joule Bergerson, Schulich School of Engineering, Associate Professor

Innovations in the Assessment of Advanced Energy Technologies

Joule Bergerson's research program applies an interdisciplinary, systems-level engineering approach that draws on methods and tools from several scientific fields. Her research explores appropriate combinations of techniques across the life cycle of technology development through to deployment; the unique characteristics of the particular energy technology; and the nature and degree of uncertainty associated with each stage of its development. In April 2015, Dr. Bergerson released the Petroleum Refinery Life Cycle Inventory Model as an open-source tool. This innovative modeling approach allows for a more detailed evaluation of the impact of crude quality and refinery configurations on GHG emissions than was previously available.

The results of this research have informed policy change, for example, they were incorporated into the 2015 Alberta Climate Leadership report, and has led to an invited presentations including the COP21 meeting in Paris in 2015. The model has been adopted by several oil companies for internal use and it has been incorporated into an investor toolkit (developed by ARC Financial) to manage investors' climate change risk as well as the most recent research paper in Science Magazine were covered by hundreds of media outlets.

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Alex Bruton, Schulich School of Engineering, Senior Instructor

Straight Up Business Institute

Dr. Bruton's scholarly work is in the area of teaching and learning for fostering innovation and entrepreneurship, i.e. he advances theoretical frameworks, practical curricula, and award-winning tools for helping others start impactful ventures, and for helping educational leaders develop entrepreneurial talent and accelerate innovation. The Straight Up Business Institute is an open education company and innovation design firm that helps people learn to innovate. It counts professors at hundreds of universities among the people it has helped. It has provided the underpinnings of several notable nation-wide initiatives for fostering innovation and entrepreneurship, including the federally-funded Big Idea Labs designed for STEM educated people who had been laid off from Blackberry in the Waterloo area. And its leading edge educational approaches help thousands of innovators every year in places as far away as Moscow, Mexico, and Waterloo, and in the labs of some amazing organizations such as Google.

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Lina Kattan, Schulich School of Engineering, Professor

Transportation Systems Optimization

Dr Kattan's research lies at the intersection of diverse disciplines, including engineering, urban planning, applied mathematics, psychology and sociology, and focuses on the exploration of the techno-economic, environmental and social dimensions associated with the deployment of emerging transportation technologies. In order to achieve sustainability, Dr Kattan's team has developed sophisticated traffic and transportation models which incorporate the key drivers that shape and improve quality of life in Canadian cities, including environmental, efficiency, equity, safety, social, and economic measures. Insights from her work inform policies and investment decisions needed to meet societal sustainability objectives.

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Hamidreza Zareipour, Schulich School of Engineering, Professor

Training Engineering Entrepreneurs and Intrapreneurs

Dr. Zareipour is an advocate for entrepreneurial thinking among undergraduate engineering education. He has established entrepreneurship stream projects with in the fourth year team design project course where students are linked with the start-up community in Alberta, and are trained for not only the technical design of solutions but also for converting them to products are services. He advocates to support those engineering students who instead of looking for jobs are creating jobs. Out of his course over the past six years, many engineering students are exposed to entrepreneurship and intra-preneurship thinking and some have stared companies with very positive outlook.

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Jeroen De Buck, Faculty of Veterinary Medicine, Professor

Innovation in Infectious Disease Biosensors

Dr. De Buck has developed a unique diagnostic platform technology. The technology is elegant and highly sophisticated conceptually and yet inexpensive and straightforward in application. The numbers of potential uses for this technology in a myriad of analytics cannot be overstated. The method has the potential to replace many rapid/field and laboratory based assays for detection of both infectious disease agents and possibly any other molecules of interest. In fact, it has the potential to revolutionize the means of conducting detection –for many applications including medical and veterinary diagnostics. He is founder of Creative Protein Solutions, a biotech start-up create to commercializes the biosensor technology.

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David C. Hall, Faculty of Veterinary Medicine, Associate Professor

Ecosystem Approaches to Improve Water and Farm Health in Vietnam

Dr. Hall's research explores EcoHealth options for working with low income, small scale agriculture communities in Vietnam where drinking water quality has been compromised by bacteria from animal waste. Working with commune leaders and villagers, the partnership has identified sustainable, cost effective, filtration and purification technologies. Our partnership has extended to include policy makers and industry, allowing centuries old commune agricultural systems to continue while reducing the threat of emerging infectious disease.

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Tuan Trang, Faculty of Veterinary Medicine, Associate Professor

Alleviating Opioid Withdrawal by Blocking Pannexin-1 Channels

Patients on opioids who wish to decrease or stop their medication often endure symptoms of withdrawal. Work from the Trang laboratory established a new understanding for the critical role of immune cells in this condition. In putting the molecular puzzle together, his team identified that probenecid a Health Canada-approved anti-gout medication effectively curbs opioid withdrawal in rodents. This discovery is being translated into the clinic to help chronic pain patients at risk for opioid withdrawal.

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2017–2018 Patent Recipients

- Gerald Zamponi
- Gregory Welch
- Vincius De Maria Gadotti
- Seth McAfee
- Agutin Garcia Caballero
- Jonathan Cann
- Chang-Chun Ling
- Leo Belostotski
- Ping Zhang
- Michael Himmelfarb
- Hermann Schaetzl
- Sabine Gilch
- Basant Abdulrahman