

Global Challenge

Year	Principle Investigator Department	Co-PI's Department	Project	Executive Summary
2021 – 2022	Kamran Behdinan Mechanical and Industrial Engineering	Christina Amon – Mechanical and Industrial Engineering	Advanced Technology for Energy Harvesting in Biomedical Device Applications	The proposed project will create a multidisciplinary global network of experts in the field of energy harvesting for biomedical applications. Building off the current expertise within the Advanced Research Lab for Multifunctional Lightweight Structures (ARL-MLS) and University of Toronto, which will establish collaborative mechanisms for connecting international research groups to develop advanced energy harvesting technologies leading to potential breakthroughs in the biomedical device sector.
		Jan Andrysek – Institute of Biomedical Engineering		
		Fae Azhari – Mechanical and Industrial Engineering		
		Rhida Ben Mrad – Mechanical and Industrial Engineering		
		Osami Honjo – Cardiovascular Surgery		
		Azad Mashari – Anesthesiology and Pain Medicine		
	Award: \$160,000			
	Lisa Forman Dalla Lana School of Public Health	Trudo Lemmens – Faculty of Law	Advancing Rights- based Access to COVID Vaccines as Part of Universal Health Coverage	Disparities in access to COVID-19 vaccines in low and middle-income countries (LMIC) is emerging as this pandemic's singular human rights and equity challenge, and these disparities have life and death consequences. Trade related intellectual property rights contribute to these disparities and create conflicts with state duties to realize the right to health. These are the legal determinants of the global vaccine gap and as such they demand legal solutions. This project will bring together a leading group of international human rights law and global health policy scholars and practitioners to advance interdisciplinary innovative human rights research program on COVID-19 vaccines as a central element of universal health care.
		Paula Braitstein – Dalla Lana School of Public Health		
		Jillian Kohler – Leslie Dan Faculty of Pharmacy		
	Award: \$200,583 C-GRIP: \$150,000			

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2021 - 2022	Kristin Cleverly Lawrence S. Bloomberg Faculty of Nursing	Norman Farb – Psychology, UTM	Building a Global Research Network to Advance Student and Youth Mental Health	The Student & Youth Mental Health Research Initiative (SYMHRI) is a new Institutional Strategic Initiative at the University of Toronto. With support from the Connaught Global Challenge Program, the SYMHRI will be uniquely positioned to be a global leader in student and youth mental health research by developing collaborative, interdisciplinary research partnerships with the leading global student and youth mental health researchers. Thematic priority areas will be co-developed through an inaugural Global Consensus Conference, and these priorities would set the stage for the development of subsequent Special Interest Groups (SIGs), Global Speaker Series, and Student-Driven Research Training Modules, culminating in a week-long Summer Research Institute, supported by the Connaught Global Challenge Award. The global research partnerships established through the Connaught Global Research Impact Program would also support the creation of a robust talent pipeline to support the next generation of student mental health researchers through an annual Research Mobilization Institute and Global Student Research Exchange. This pipeline will build the requisite knowledge, skills, shared language, and values necessary for success in student mental health research.
		Brett Ford – Psychology, UTSC		
		Benjamin Goldstein – Psychiatry		
		Chloe Hamza – Applied Psychology and Human Development		
		Bonnie Kirsch – Occupational Science and Occupational Therapy		
		Eunjung Lee – Factor Iwentash Faculty of Social Work		
		Tina Malti – Psychology, UTM		
		Catherine Sabiston – Faculty of Kinesiology and Physical Education		
		Peter Szatmari – Psychiatry		
		Amanda A. Ulisazek – Psychology, UTSC		
		Alison Freeland – Psychiatry		
		Joanna Henderson – Psychiatry		
		Meng Chuan Lai – Psychiatry		
Award: \$248,740 C-GRIP: \$148,000	David Wiljer – Dalla Lana School of Public Health			

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2021 – 2022	Fiona Miller Institute of Health and Policy Management and Evaluation	<p>Geoffrey Anderson – Dalla Lana School of Public Health</p> <p>Yan Ning – Chemical Engineering and Applied Chemistry</p> <p>Michael Widener – Geography and Planning</p> <p>Laura Tozer – Physical and Environmental Sciences, UTSC</p> <p>Alstan Jakubiec – John H. Daniels Faculty of Architecture, Landscape and Design</p> <p>Robin MacLeod - Surgery</p> <p>Miriam Diamond – Earth Sciences</p> <p>Steve Easterbrook – Computer Science</p> <p>Paul Grootendorst – Leslie Dan Faculty of Pharmacy</p> <p>Quinn Grundy – Lawrence S. Bloomberg Faculty of Nursing</p> <p>Jillian Kohler – Leslie Dan Faculty of Pharmacy</p> <p>Heather MacLean – Civil and Mineral Engineering</p> <p>Virginia MacLaren – Geography and Planning</p> <p>Anita McGahan – Rotman School of Management</p> <p>Blake Poland – Dalla Lana School of Public Health</p> <p>I. Daniel Posen – Civil and Mineral Engineering</p> <p>John Robinson – Munk School of Global Affairs and Public Policy</p> <p>Aviv Shachak – Dalla Lana School of Public Health</p> <p>Emily Seto – Dalla Lana School of Public Health</p> <p>Robert Soden – Computer Science</p> <p>Marianne Touchie – Civil and Mineral Engineering</p> <p>Patricia Trbovich – Dalla Lana School of Public Health</p>	<p>Research Capacity for a Climate Positive Health System: The International Research Network for Climate Positive Care (IRNCPC)</p>	<p>The University of Toronto (UofT) has the potential to become an international leader in the science of climate positive care. This science will produce the evidence, ideas and innovations required to meet pressing net-zero GHG emission targets, while advancing the net-positive outcomes we expect from health systems. Our plan is to enhance research collaborations and training capacity across divisions, which will address the global demand for the new science of climate positive care, driven by growing national net-zero health system targets. The proposed International Research Network for Climate Positive Care (IRNCPC) will coordinate UofT research and capacity development and build robust national and international connections across three, linked, challenge-led and solutions-focused research themes for: (1) sustainable pharmaceuticals and healthcare plastics ecosystem, (2) Sustainable and resilient built healthcare environments, and (3) Health service and system innovation for sustainable care. The IRNCPC objectives are to: (i) forge a common vision for research effort across the IRNCPC team, and (ii) develop interdisciplinary training pathways to create research capacity by fostering trainee interest in innovative interdisciplinary research on climate positive health systems.</p>
	Award: \$249,820			

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2020 - 2021	Anver Emon Faculty of Law Award: \$213,975	Haytham Nahoorah – Comparative Literature, Near and Middle Eastern Studies	Reading Muslims: The Politics of Texts in Islamic Studies	The Reading Muslims Project seeks the theoretical enrichment of our textual approaches by engaging with the field's history and the novel insights of postcolonial studies, critical race studies, gender studies, and queer studies, among other disciplines that focus upon histories of power and marginalization.
		Mohammad Fadel – Faculty of Law		
		Alexandra Gillespie – English and Drama, UTM		
		Ruba Kana'an – Visual Studies, UTM		
		Jeannie Miller – Near and Middle Eastern Civilizations		
		Amira Mittermaier – Religion, Anthropology		
		Nada Moutmaz – Study of Religion		
		Yucef Soufi – Institute of Islamic Studies		
Timothy Chan Mechanical and Industrial Engineering Award: \$250,000	Beth Ali – Faculty of Kinesiology and Physical Education	High-Performance Analytics for High-Performance Sports	Our long-term goal is to turn the University of Toronto (UofT) into a global centre of excellence in sports analytics. Our specific objectives are to accelerate sports analytics research, develop novel student training opportunities, facilitate industry engagement, and improve EDI. We will achieve these objectives through: 1) "Pathfinder" research projects to catalyze faculty-student-industry interactions; 2) an international symposium and summer school; 3) the first EDI study in the sports analytics sector.	
				Paul Dorian – Faculty of Medicine
				Michael Hutchison – Faculty of Kinesiology and Physical Education
				Matthew Mitchell – Rotman School of Management
				Doug Richards – Faculty of Kinesiology and Physical Education
				Nathan Taback – Statistical Sciences
				Scott Thomas – Faculty of Kinesiology and Physical Education
				Richard Zemel – Computer Science

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2020 - 2021	Shana Kelley Leslie Dan Faculty of Pharmacy	Robert Batey – Chemistry	Global Perspectives to Advanced Precision Medicine	The Global Challenge funding will allow PRiME to establish: 1) - The PRiME Frontiers of Precision Medicine Speaker Series . 2) - The PRiME Ph.D. and PDF Exchange Program that will provide trainee exchange opportunities with partner institutions to allow hands-on training in advanced technologies. 3) - The PRiME Scholars Program for local and international undergraduate students to gain hands-on experience in the labs of PRiME members and benefit from programming around entrepreneurship and drug discovery.
		Jason Moffat – Faculty of Medicine, Donnelly Centre for Cellular and Biomolecular Research		
		Milica Radisic – Institute of Biomaterials and Biomedical Engineering		
		Molly Shoichet – Chemical Engineering and Applied Chemistry		
		Keith Paradee – Leslie Dan Faculty of Pharmacy		
		Alán Aspuru-Guzik – Chemistry, Computer Science		
		Stéphane Angers - Leslie Dan Faculty of Pharmacy		
Award: \$250,000				
Jillian Kohler Leslie Dan Faculty of Pharmacy	Suzanne M. Cadarette – Leslie Dan Faculty of Pharmacy	Avram Denburg – Paediatrics, Faculty of Medicine	Advancing Anti- Corruption, Transparency and Accountability Mechanisms to Tackle Corruption in the Pharmaceutical System	This initiative will create a vibrant and multidisciplinary global network of experts who will harness their knowledge to focus on what anti-corruption, transparency and accountability (ACTA) mechanisms can reduce corruption in the pharmaceutical sector globally. Three priority areas of focus: 1) Optimal Anti-Corruption, Transparency and Accountability (ACTA) Mechanisms for the Pharmaceutical System; 2) Examination of the Regulation of the Global Pharmaceutical Industry; and, 3) Harnessing of Technology to Curb Corruption in the Pharmaceutical Procurement.
		Erica Di Ruggiero – Dalla Lana School of Public Health		
		Lisa Forman – Dalla Lana School of Public Health		
		Paul Grootendorst – Leslie Dan Faculty of Pharmacy		
		Quinn Grundy – Lawrence S. Bloomberg Faculty of Nursing		
		Trudo Lemmens – Faculty of Law		
		Joel Lexchin – Faculty of Medicine		
		Anita McGahan – Rotman School of Management, Munk School of Global Affairs		
		Kathy Moscou – Leslie Dan Faculty of Pharmacy		
		Alison Thompson – Leslie Dan Faculty of Pharmacy		
Award: \$249,400				

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2019 – 2020	Adalsteinn Brown Dalla Lana School of Public Health	Sara Allin - Institute of Health Policy, Management and Evaluation	The Benefits of Pneumococcal Vaccination for Seniors: A Centre for Vaccine Preventable Diseases Interdisciplinary Project on Healthy Aging and Immunization Science	This project proposes to build a new interdisciplinary collaboration at the University of Toronto on immunization of seniors by focusing on pneumococcal vaccination, approaching the issue from diverse perspectives. In establishing aging as a focus, the project will take a life course lens to vaccination and build the groundwork for synergistic initiatives in the science of immunization and aging.	
		Frank Rudzicz – International Centre for Surgical Safety			
		Natasha Crowcroft – Laboratory Medicine & Pathobiology, Dalla Lana School of Public Health			
		Beate Sander – Institute of Health Policy, Management and Evaluation			
		Sarah Wilson – Dalla Lana School of Public Health			
		Jeff Kwong – ICES			
		Jonathan Gubby – Laboratory Medicine & Pathobiology			
		Shelley Deeks – Dalla Lana School of Public Health			
		Dana Philpott - Immunology			
		Tania Watts – Immunology			
		Scott Gray-Owen – Molecular Genetics			
		Esme Fuller-Thomson – Factor-Inwentash Faculty of Social Work			
		Jennifer Gibson - Centre for Bioethics			
		Ross Upshut – Dalla Lana School of Public Health			
Award: \$248,789					
David McMillen UTM: Chemical and Physical Sciences	Cynthia Goh - Chemistry, Institute of Medical Science, and Munk School of Global Affairs	Creso Sá – CIHE, OISE	Innovating for the Global South: Accelerating the Impact of Synthetic Biology on Health	The proposed project will help define health needs and targets, encourage collective thinking around potential solutions, and advance models of how synthetic biology innovations can reach affected populations. The proposed initiative will allow stakeholders to move together from brainstorming urgent and realistic targets to identifying creative solutions.	
					Keith Pardee – Pharmacy
					Arun Chockalingam – Dalla Lana School of Public Health, and Faculty of Medicine
					Award: \$245,400

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2019 - 2020	Avrum Gotlieb Laboratory Medicine and Pathobiology Award: \$247,000	Uri Tabori – Pediatrics Joseph Ferenbock – Psychiatry Norman Rosenblum – Pediatrics, Physiology, and Laboratory Medicine & Pathobiology Paul Santerre – Faculty of Dentistry Ronald Cohn – Molecular Genetics Benoit Mulsant – Psychiatry James Rutka – Surgery Alan Moody – Medical Imaging Gillian Hawker – Rheumatology Lucy Osborne – Medicine, Molecular Genetics Naomi Matsuura – Materials Science & Engineering, Institute of Biomaterials & Biomedical Engineering	Catalyzing the University of Toronto as a Global Epicenter for Translational Research and Training	This proposal aims to establish an effective centre in Toronto for translational activities, which will increase strategic coordination around awareness, education, research, and innovation opportunities that accelerate, impact and facilitate relationship-building with academic, industry and legislative stakeholders. The creation of a community to provide support and infrastructure at the U of T will expedite the growth and development of our local translational infrastructure and its global reach.
2018 - 2019	Laura Rosella Dalla Lana School of Public Health Award: \$250,000	Ajay Agrawal – Rotman School of Management Timothy Chan – Mechanical and Industrial Engineering Ayi Goldfarb – Rotman School of Management Scott Sanner – Mechanical & Industrial Engineering	Beyond Prediction: Building a Global Network to Unlock the Potential of Advanced Analytics & Population Risk Tools to Address Complex Health System Challenges	The goal of this proposal is to form a team based out of the University of Toronto that will launch a global network to advance innovative research and training in predictive analytics. The team will address the most pressing health challenges, distinctly from a population health perspective.
	Andreas Veneris Electrical and Computer Engineering Award: \$222,435	Katya Malinova – Economics Andreas Park – UTM: Management, and Rotman School of Management	UTLedgeHub: University of Toronto's Global Knowledge Hub for Crypto-Economic Technology, Finance, Privacy, Governance, and Regulation in a Decentralized Future	This proposal will establish UTLedgeHub, a lab that amalgamates and bundles the University of Toronto's researchers' interests across the main related areas: technology, finance, and economics – so as to establish the U of T as an international leader in research and teaching of decentralized ledger technology and blockchain technology.

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2018 – 2019	Marc Cadotte UTSC: Biological Sciences Award: \$242,500	Marney Issac – UTSC: Physical & Environmental Sciences	Solving the Global Urban Biological Invasions Conundrum	This proposal argues for the creation of a Global Urban Biological Invasions Consortium (GUBIC) to oversee a network of projects and collaborations to determine the magnitude of invasion economic and ecosystem impacts in cities around the world.
		Daniel Silver - UTSC: Sociology		
		James Scott McIvor – UTSC: Biological Sciences		
		Nicholas Mandrak – UTSC: Biological Sciences		
		Sara Hughes – UTM: Political Science		
		Marc Johnson – UTM: Biology		
		Marie-Josée Fortin – Ecology & Evolutionary Biology		
		Sandy Smith – Forestry		
		Liat Margolis – Architecture, Landscape & Design		
	Valentina Napolitano Anthropology Award: \$250,000	Simon Coleman – Religion	Entangled Worlds: Sovereignities, Soils and Sanctities	This project examines contemporary forms of sovereignty by realizing the potential of the tri-campus University of Toronto as a leading hub of knowledge and expertise on relations between Theologies and both the Social and Natural Sciences.
2017 – 2018	Laura Derksen UTM: Management Award: \$247,860	Anita McGahan – Rotman School of Management	Big Data – Local Impact – Healthy Lives: Building a Canadian Indigenous and African Health Informatics Research and Innovation Platform	The Big Data revolution has the potential to transform healthcare delivery in low resource settings and radically improve health outcomes for those living in remote, rural, and Indigenous communities. This proposal will examine the potential for Big Data to unlock innovation in healthcare delivery, leading to locally relevant breakthroughs. The overarching goal is to study the use of local data where health improvements must happen.
		Joseph Cafazzo – Healthy Policy, Management & Evaluation		
		James Orbinski – Dalla Lana School of Public Health		
		Adrienne Chan – Medicine		
		Sumeet Sodhi-Helou – Family & Community Medicine		
		Benjamin Chan – Health Policy, Management & Evaluation		
	Vijayakumar Murty Mathematics Award: \$250,000	Joseph Wong – Political Science	Scalable Architecture for Smart Villages	The project aims to develop expertise and leadership in the development of Smart Villages, resulting in more emphasis on human resource development and empowerment.
	Mariana Prado – Faculty of Law			

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2017 - 2018	Prabhat Jha Dalla Lana School of Public Health Award: \$250,000	Graeme Hirst – UTSC: Computer and Math Science	Innovations to Close the Global Mortality Data Divide	The proposal aims to expand U of T's global leadership with additional innovations that carefully frames the global mortality data divide as a solvable challenge.
		Marie-Josée Fortin – Ecology and Evolutionary Biology		
		Anita McGahan – Rotman School of Management		
	Michelle Murphy History Award: \$234,800	John Ross McLaughlin – Dalla Lana School of Public Health	Technoscience Research Unit Lab for Environmental Data Justice	This project will establish a Technoscience Research Unit Lab, situated to become a leader in the emergent field of Environmental Data Justice (EDJ). The research goes beyond Open Access approaches to environmental data by critically examining and proposing alternatives to the infrastructures that create, care for, and share environmental data towards the goals of environmental justice.
		Erica Di Ruggiero – Dalla Lana School of Public Health		
		Alessandro Delfanti – UTM: Communication, Culture, Innovation & Technology		
	Craig Simmons Mechanical and Industrial Engineering Award: \$250,000	Patrick Keilty – Faculty of Information	The Global Fibrosis Network	The central objective of this proposal is to establish the Global Fibrosis Network (GFN) that through its cumulative interdisciplinary and multi-sectoral expertise, will initiate and lead a coordinated effort to catalyze the advancement of fibrosis research.
		Shiho Satsuka – Anthropology		
		Christopher McCulloch – Faculty of Dentistry		
2016 – 2017	Mark Fox Mechanical and Industrial Engineering Award: \$250,000	Richard Gilbert – Laboratory Medicine & Pathobiology	Urban Genome Project	The Urban Genome Project (UGP) is a multi-disciplinary effort, with the ultimate goal of creating a Science of Cities. UGP is a broad-based effort to uncover the microcosmic building blocks of cities and urban life that can be put together, recomposed and scaled in various ways.
		Beate Sander – Health Policy, Management and Evaluation		
		Richard Florida – Rotman School of Management		
		Shauna Brail – Urban Studies Program		
		Matthew Siemiatycki – Geography		
Daniel Silver – UTSC: Sociology				
		Robert Wright – Architecture, Landscape & Design		

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2016 – 2017	David Lie Electrical and Computer Engineering Award: \$250,000	Lisa Austin – Law	The Information Technology, Transparency, and Transformation (IT3) Lab	This proposal is to create the Information Technology, Transparency, and Transformation (IT3) Lab. The objectives of IT3 will be to make the implications and effects of information collection, warehousing and analysis transparent to individuals, companies, and governments.
		Avi Goldfarb – Rotman School of Management		
	Brent Sleep Civil Engineering Award: \$248,000	Clare Brett – OISE	Network for Engineering Education for Sustainable African Cities (NEESAC)	This project will create a new partnership called the <i>Network for Engineering Education for Sustainable African Cities (NEESAC)</i> . The project plan is to pursue a set of 10 initiatives to build out a network, to create customized online content around the topic of sustainable cities, and to generate a rich dialog with African educators.
		Patricia McCarney – Political Science		
		Greg Evans – Chemical Engineering		
		Jennifer Drake – Civil Engineering		

Recipients Under the Former Global Challenge Program

Year	Awardee	Department	Project
2014 – 2015	Geoffrey Ozin	Chemistry	The New CO2 Economy – Solar Energy Enabled Closed Carbon Cycle
2013 – 2014	Brenda Andrews	Centre for Cellular & Biochemistry Research	Network for Modeling and Mapping Complex Disease: Addressing the Global Challenge to Understand Our Personal Genomes
2013 – 2014	Jennifer Gommerman	Immunology	Global Migration and Chronic Inflammatory Disease
2012 – 2013	Edward Sargent	Electrical and Computer Engineering	Bio-inspired Energy-conversion Technologies
2010 -2011	Stephen Lye	Obstetrics and Gynaecology	Developmental Trajectories: A University of Toronto System-wide Initiation to Improve Health