Innovation Award

Year	Winner	Department	Project
2023 - 24	Edgar Acosta	Chemical Engineering & Applied Chemistry	Lecithin-based, self- micro/emulsifying delivery systems (SM/EDS) for drug and nutraceutical delivery
	Ana Andreazza	Pharmacology & Toxicology	Mitochondrial Isolation Device (MitoDx)
	Gisele Azimi	Chemical Engineering and Applied Chemistry	Supercritical fluid extraction for recycling of critical materials from E-waste
	Opher Baron	Area of Operations Management and Statistics	SiMLQ: Transforming process data into actionable insights
	Chung-Wai Chow	Medicine	Machine Learning to facilitate accurate interpretation of pulmonary function tests
	Maryam Faiz	Surgery	Astrocyte to oligodendrocyte reprogramming (A2O) for repair in chronic multiple sclerosis (MS)
	Andrew Fraser	Molecular Genetics	Establishing methods for single-cell metabolomics using hydrogel-embedded barcode aptamers
	Roman Genov	Electrical and Computer Engineering	Fast Pixel-Programmable Image Sensors for Cost-Effective Imaging without Motion Artifacts
	Cynthia Goh	Chemistry	2 - Harnessing bacterial-surface interactions for rapid pathogen identification
	Frank Gu	Chemical Engineering & Applied Chemistry	Magnesium ion crosslinked hyaluronic acid hydrogels for biomedical applications
	Jorg Liebeherr	Electrical and Computer Engineering	Low-cost large-scale methane monitoring at landfills
	Xilin Liu	Electrical and Computer Engineering	Energy-Efficient Edge Machine Learning Accelerator for Neuromodulation
	Andreas Mandelis	Mechanical & Industrial Engineering	Intravascular Differential Photoacoustic Catheter Imager for Quasi-Invasive Detection of Vulnerable Plaques and Calcification in Coronary Artery Atherosclerosis
	Hani Naguib	Mechanical & Industrial Engineering	Aerogel Film Materials for Thermal Management Systems
2022 - 23	Ronald Kluger	Chemistry	Production and Evaluation of Hemoglobin-Bis-Tetramers for Oxygen Transport to Increase Supply of Lungs for Transplant by Enhancing Ex Vivo Perfusion of Donor Lungs
	Alan Cochrane	Molecular Genetics	Development of broad-spectrum, host-directed antivirals
	Eugenia Kumacheva	Chemistry	A platform for safety evaluation of chemical agents
	Patrick Gunning	Chemical & Physical Sciences	Development of an Artificial Intelligence-Driven Platform to Explore the Undruggable Genome
	Denise Belsham	Physiology	The use of a plant hormone CX as an appetite suppressant

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2022 - 23	Janice Robertson	Laboratory Medicine & Pathiobiology	Targeting TDP-43 aggregation as therapeutics for TDP-43 proteinopathies
	Paul Yoo	IBME	Novel Electrodes for Non-Invasive Electrical Nerve Stimulation
	Kevin Golovin	Mechanical & Industrial Engineering	Reducing microplastic fibre pollution using low friction polymer brush as textile coatings.
	Yu Zou	Materials Science & Engineering	Autonomous additive manufacturing system (AAMS)
	Glenn Gulak	Electrical & Computer Engineering	A Hardware Accelerator for Fully Homomorphic Encryption based Machine Learning Applications
	Julie Audet	IBME	HiDiNeu: A tool to optimize complex formulations based on evolutionary computation accelerated by artificial neural networks
	Benjamin Hatton	Materials Science & Engineering	Smart building facades for scalable operational energy management
2021 - 22	Gisele Azimi	Chemical Engineering and Applied Chemistry	High-performance and Cost-effective Aluminum Battery for Electric Transportation and Renewable Energy Storage
	Sanjeev Chandra	Mechanical and Industrial Engineering	Thermal Spray Fabrication of Liquid Cooled Heat Sinks
	Mark Chignell	Mechanical and Industrial Engineering	Target Acquisition Games for Measurement and Evaluation (TAG-ME) of Detailed Brain Function
	Charlene Chu	Lawrence S. Bloomberg Faculty of Nursing	Computer Vision-based Physical Function Assessments to Increase Access to Rehabilitation After Orthopedic Surgery
	Roman Genov	Electrical and Computer Engineering	Low-cost Camera for Motion-tolerant Adaptive High-dynamic-range Imaging
	Patrick Gunning	Chemical and Physical Sciences, UTM	Development of Covalent HDAC2 Inhibitors for the Treatment of Duchenne's Muscular Dystrophy
	Benjamin Hatton	Materials Science and Engineering	Smart Wound Dressings for Active Control of Wounds and Skin Tissue Regeneration
	David Lie	Electrical and Computer Engineering	Tools and Techniques to Perform Comprehensive Security Assessments
	Cindi Morshead	Surgery/Anatomy, Temerty Faculty of Medicine	Optimization of a Novel Gene Therapy to Promote Repair of the Stroke Injured Brain
	Milos Popovic	Institute of Biomedical Engineering	"Take Home" Neurostimulation for Depression: Prototype Development and Proof of Concept Clinical Trial
	Craig Simmons	Mechanical and Industrial Engineering	Cell Culture Medium to Improve the Maturity and Utility of Induced Pluripotent Stem Cell-derived Cardiomyocytes
	Xiao Yu (Shirley) Wu	Leslie Dan Faculty of Pharmacy	Development of Prototype "Smart" Microneedle Patch for Diabetes

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2020 - 21	Ding Yuan	Electrical and Computer Engineering	CLP: Efficient and Scalable Search on Compressed Text Logs
	Mansoor Barati	Materials Science and Engineering	Process Scale-up for a Novel Method of Nickel Extraction
	Eric Diller	Mechanical and Industrial Engineering	Non-invasive Sampling in the Gut using a Magnetic Capsule
	Levante Diosady	Chemical Engineering and Applied Chemistry	Iron Fortification of Tea Beverages
	Roman Genov	Electrical and Computer Engineering	Energy-Efficient Coded-Exposure-Pixel Cameras for Accurate Imaging with Motion Artifacts
	Patrick Gunning	Chemical and Physical Sciences, UTM	Picomolar HDAC6 Inhibitors for the Treatment of Hematological Malignancies
	Emma Master	Chemical Engineering and Applied Chemistry	2ZYME: Two-step Biocatalytic Conversion for Underused Biorefinery Side-streams to Glucaric Acid
	Prasanth Nair	Institute for Aerospace Studies	Computational Framework for Fast Uncertainty Quantification and Decision Analytics
	Yu Sun	Mechanical and Industrial Engineering	Development of an Automated System for Blastocyst Biopsy with Minimal Invasiveness in IVF Clinics
	Taufik Valiante	Surgery, Faculty of Medicine	Implantable Neuromodulation Device for Comparative Medicine in Canine and Human Epilepsy
	Shirley Xiao Yu Wu	Pharmacy	Development of a Nanotechnology-based Platform for the Central Nervous System (CNS) Diseases
2019 – 20	Timothy Bender	Chemical Engineering and Applied Chemistry	Commercial Prototypes of Unique Red Emitters for OLED Display Applications
	Sanja Fidler	Mathematical and Computational Sciences, UTM	Toronto Annotation Suite
	Benjamin Hatton	Materials Science and Engineering	Smart, Adaptive Robotic Gripping Through Dynamic Micropost Array
	Glen Hibbard	Materials Science and Engineering	De-composting Structural Sandwich Panels: Towards True Material Sustainability
	Michael Hutchison	Faculty of Kinesiology and Physical Education	RHEA: An Interactive, Personalized Approach to Exercise Rehabilitation for Concussion
	Eyal de Lara	Computer Science	Development of a Wearable Sensing Backend for Clinical Research Studies
	Hoi-Kwong Lo	Electrical and Computer Engineering	Quantum-Proof Key Distribution Protocol with Physical Key Delivery
	Molly Shoichet	Chemical Engineering and Applied Chemistry	Development of Vitreous Substitute to Treat Retinal Detachment
	Karan Singh	Computer Science	Product Readiness of a System for the Speech Driven Animation of 3D Faces

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2018 – 19	Yu Sun	Mechanical and Industrial Engineering	Development of an Ex Vivo Heart Perfusion System with Non-invasive Heart Functional Assessment Capability
	Morgan Barense	Psychology	The Hippocamera: A Neuroscience-guided Digital Memory Augmentation Device
	Mark Chignell	Mechanical and Industrial Engineering	Centivizers for Managing Behaviour in Dementia using Rewarded Activities
	Yoav Finer	Faculty of Dentistry	Dental Materials for Ultra-Long-term Caries Prevention and Restoration-Tooth Bond Preservation
	Roman Genov	Electrical and Computer Engineering	Clinical Validation of an Intelligent Implantable Neurostimulator for Treating Drug-Resistant Epilepsy
	Andreas Mandelis	Mechanical and Industrial Engineering	Wavelength-Modulated Intravascular Differential Photoacoustic Radar Imaging (IV-DPARI) Catheter Development for Minimally Invasive Human Coronary Lipid-Rich Plaque Arterial Wall (Intima) Imaging Diagnosis
	Alison McGuigan	Chemical Engineering and Applied Chemistry	An in vitro human muscle cell potency assay for cell product QC and muscle endogenous repair drug identification
	Trevor Moraes	Biochemistry	Development of Large Scale Surface Lipoprotein Antigen Production
	Vladimiros Papangelakis	Chemical Engineering and Applied Chemistry	Forward Osmosis-Freeze Concentration (FO-FC) Hybrid Process to Recover Clean Water from Industrial Effluents
	Igor Stagljar	Biochemistry	Split intein-mediated protein ligation (SIMPL) – a novel high throughput technique for detecting protein-protein interactions
	Paul Yoo	Institute of Biomaterials and Biomedical Engineering	Evaluation of novel polymer coatings aimed at improving the performance of chronically implanted electrodes.
	Ding Yuan	Electrical and Computer Engineering	Non-intrusive Software Failure Resolution
	Andrei Yudin	Chemistry	An Enabling Building Block for Chemical Synthesis of Value-Added Molecules
2017 – 18	Brenda Andrews	Molecular Genetics	Accelerating discovery and health care by automating the interpretation of cell and tissue phenotypes
	Jennifer Gommerman	Immunology	TNFSF13 as treatment for Multiple Sclerosis
	Patrick Gunning	Chemical and Physical Sciences	App 2: Development of a rapid, <10 min diagnostic assay for bacterial infections of blood and CSF
	Andreas Mandelis	Mechanical and Industrial Engineering	Development of dynamic Lock-in Carrierography (LIC) Imaging technology as a quality control tool for the electronics wafer process cleaning industry

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2017 - 18	Andreas Moshovos	Electrical and Computer Engineering	A Value-Based Approach to Accelerating Deep Learning in Hardware
	Robert Pilliar	Institute of Biomaterials and Biomedical Engineering	Tissue-engineered Digital Joint Implants
	Frank Rudzicz	Computer Science	Automatic assessment of dementia from speech
	David Steinman	Mechanical and Industrial Engineering	A Real-time, Dynamic Ultrasound Simulator Incorporating Tissue Motion and Deformation
	Yu Sun	Mechanical and Industrial Engineering	A Novel System of Non-Invasive Selection of Single Spermatozoa with High DNA Integrity for Clinical In Vitro Fertilization (IVF)
2016 – 17	Robert Bonin	Leslie Dan Faculty of Pharmacy	Automated behavioural platform for rapid in vivo pharmaceutical testing
	David Fleet	Computer Science	Advanced Algorithms to Discover Protein Structures for Drug Design
	Glenn Gulak	Electrical and Computer Engineering	Secure Homomorphic Search for Confidential Approval and Verification of Bank Card and Online Purchases
	Donald Kirk	Chemical Engineering and Applied Chemistry	Electrochemical Glycerol Carbonate Production
	Cindi Morshead	Surgery	Promoting Neurorepair via Novel Biphasic Electrical Stimulation Therapy
	Paul Santerre	Faculty of Dentistry	ReFlix: A soft tissue filler for the reconstruction of breast tissue defects.
	Aaron Wheeler	Chemistry	Design of an alpha prototype of a digital microfluidic laser cell lysis platform for prenatal genetic testing
	Xiao Yu (Shirley) Wu	Leslie Dan Faculty of Pharmacy	Intelligent Nanoparticle Theranostics for CNS Diseases
	Andrei Yudin	Chemistry	An Enabling Macrocyclization Technology for the Development of Pharmaceutical Agents
2015 – 16	J. Stewart Aitchison	Electrical and Computer Engineering	An Optimized Waveguide Based Light Delivery System for Algal Biofilm Reactors
	Roman Genov	Electrical and Computer Engineering	Pre-market Clinical Validation of a Seizure-Aborting Smart Implantable Neurostimulator for Treating Drug-Resistant Epilepsy
	Glenn Gulak	Electrical and Computer Engineering	A Wireless CMOS Device for Rapid Point of Care Diagnosis of Bacterial Infections
	Bob Hinz	Faculty of Dentistry	Commercialization of a novel high-throughput screen (HTS) to test the contractile function of heart muscle cells (cardiomyocytes)
	Shana Kelly	Leslie Dan Faculty of Pharmacy	Device for the Rapid Electrochemical Phenotypic Profiling of Antibiotic Resistant Bacteria

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2015 - 16	Robert Morris	Chemistry	Sustainable iron catalysts for the hydrogenation of esters and carbon dioxide
	Dwight Seferos	Chemistry	Development of a Flexible Thin-film Battery
	Yu Sun	Mechanical and Industrial Engineering	Development of an automated instrument to standardize embryo vitrification in IVF clinics
	Paul Yoo	Institute of Biomaterials and Biomedical Engineering	Novel Electrical Stimulation Target for Treating Overactive Bladder (OAB)
2014 – 15	Edgar Acosta	Chemical Engineering and Applied Chemistry	Microencapsulated Self-Microemulsifying Drug Delivery System
	Ridha Ben Mrad	Mechanical and Industrial Engineering	A cellphone camera module incorporating a micro-electrostatic actuator enabling autofocus (AF) and optical image stabilization (OIS) capabilities
	Constantin Christopoulos	Civil Engineering	Implementation of the GIB system for the seismic upgrade of a real soft-storey building retrofit
	Ofer Levi	Institute of Biomaterials and Biomedical Engineering	Miniature, implantable multimodality optical imaging systems for drug screening in awake rodents
	Radhakrishnan Mahadevan	Chemical Engineering and Applied Chemistry	Production of bio-based 1,3-butanediol
	Mo Mojahedi	Electrical and Comptuer Engineering	Multimode Spectroscopy with Plasmonics and Hybrid Plasmonics Sensors
	Geoffrey Ozin	Chemistry	Energy Transition Engineering Solar Enabled CO2 Conversion Technology
	Edward Sargent	Electrical and Computer Engineering	Commercialization of a highly efficient hybrid quantum dot/silicon solar cell
	David Steinman	Mechanical and Industrial Engineering	A Disruptive, Physics-Based Ultrasound Simulation Platform for Accelerating Sonographer Training
2013 – 14	Baher Abdulhai	Civil Engineering	Field Operation Testing and Commercialization of MARLIN: U of T's Latest Adaptive Traffic Signal Control Technology
	Richard Cobbold	Electrical and Computer Engineering	PedicProbe: Ultrasound Navigation for Spinal Fusion Surgery Accurate Insertion of Screw Implants Using 3D Ultrasound Navigation
	Richard Hegele	Laboratory Medicine and Pathobiology	Repurposing of anti-cancer drug for respiratory syncytial virus (RSV) therapy and prophylaxis
	Shana Kelley	Leslie Dan Faculty of Pharmacy	A microchip for the sorting and analysis of circulating tumour cells
	Joyce Poon	Electrical and Computer Engineering	Three dimensionally integrated electro-optic transmitters and receivers
	Li Qian	Electrical and Computer Engineering	High-speed on-demand quantum random number generator

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2013 - 14	Yu Sun	Mechanical and Industrial Engineering	Automated probing of nanoelectronic structures inside scanning electron microscope
	Michael Thompson	Chemistry	A true theranostic approach to medicine: tandem sensor detection and removal of endotoxin in blood
	Xiao Yu Wu	Leslie Dan Faculty of Pharmacy	Automated probing of nanoelectric structures inside scanning electron microscope
2012 – 13	Ridha Ben Brad	Mechanical and Industrial Engineering	An ultra-thin MEMS electrostatic actuated and variable stiffness platform for autofocus and lens stabilization in cellphone cameras
	Constantin Christopoulus	Civil Engineering	Development of Viscoelastic Coupling Damper for Enhanced Dynamics Performance of High-Rise Buildings
	Carolyn Cummins	Leslie Dan Faculty of Pharmacy	Use of LXR antagonists to decrease glucocorticoid-induced side effects
	Axel Guenther	Mechanical and Industrial Engineering	Skin Printer for Wound Dressings
	Ping Lee	Leslie Dan Faculty of Pharmacy	Controlled-release Nitric Oxide Delivery System for Ophthalmic Applications
	Zheng-hong Lu	Materials Science and Engineering	White Organic Light Emitting Diodes for Lighting Applications
	Adam Rosebrock	Centre for Cellular and Biomolecular Research	Combinatorial synthesis of DNA libraries: a novel technology enabling fully customizable, rapidly deployable reagents for diagnostics, functional genomics, and gene synthesis
	Dwight Seferos	Chemistry	Development of a Nanotube-Based Energy Storage Device
	Pierre Sullivan	Mechanical and Industrial Engineering	Advanced Miniature Ion Mobility Spectrometry for Biomarker Identification with Integrated Sample Processing Stage
	Paul Yoo	Institute for Biomaterials and Biomedical Engineering	Novel Electrical Neuromodulation Therapy of Overactive Bladder Symptoms
2011-12	J. Stewart Aitchison	Electrical and Computer Engineering	Development of a portable cytometer for global health
	Timothy Bender	Chemical Engineering and Applied Chemistry	Precommercialization of novel compositions of matter: multifunctional organic materials for organic solar cells (electronically conductive and light absorbing boron subphythalocyanines)
	Constantin Christopoulos	Civil Engineering	Development of Cast Steel Yielding Bracing Systems for the Enhanced Seismic Protection of Infrastructure
	Michael Glogauer	Faculty of Dentistry	Colourimetric Rinse Test to Screen for Periodontal (Gum) Disease

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2011-12	Eugenia Kumacheva	Chemistry	An automated integrated microfluidic platform for screening of carbon dioxide
	Howard Lipshitz	Molecular Genetics	Synthetic antibodies against RNA-binding proteins
	Milos Popovic	Institute of Biomaterials and Biomedical Engineering	System for therapeutic intervention for restoration of voluntary upper limb function in individuals with sever paralysis following stroke or spinal cord injury
	Dwight Seferos	Chemistry	Development of Plastic Solar Cells
	Molly Shoichet	Chemical Engineering and Applied Chemistry	Injectable hydrogel for local delivery to the brain
	Yu Sun	Mechanical and Industrial Engineering	Development of an Automated Microsystem for Biophysical Measurement of Red Blood Cells
	Shahrokh Valaee	Electrical and Computer Engineering	Dynamic RSS Radio Map Generation for Indoor Positioning
2010 - 11	Ronald Baecke	Computer Science	Context-Aware Speech Aid
	Mansoor Barati Sedeh	Materials Science and Engineering	Development of Technology for Production of Solar Grade Silicon
	Tom Chau	Institute of Biomaterials and Biomedical Engineering	Development of a Brain-Computer Interface Based on Near-Infrared Spectroscopy
	Amr Helmy	Electrical and Computer Engineering	Next Generation Diode Laser Products Benefiting Environmental and Biomedical Instruments
	Peter Lehn	Electrical and Computer Engineering	The Next Generation in Commercial Solar Photovoltaic System Configuration: High Voltage Bipolar DC Collector Networks with Distributed DC/DC Converts
	Joyce Poon	Electrical and Computer Engineering	Fabrication of coupling-modulated lasers
	Milicia Radisic	Institute of Biomaterials and Biomedical Engineering	Application of QHREDGS peptide in survival and expansion of human stem cells and their cardiovascular progeny
	Yu Sun	Mechanical and Industrial Engineering	Automated Adherent Cell Microinjection
	Aaron Wheeler	Chemistry	Detection of Steroid Hormones Using Digital Microfluidics
	Ning Yan	Forestry	Developing of NCC based antistatic coatings and conductive packaging materials as ESD protection products