

## John R. Evans Leaders Fund Backgrounder

### Ontario

The Canada Foundation for Innovation (CFI) Board of Directors approved a contribution of \$33,537,683 to support 155 infrastructure projects in the province.

Project Title / Titre du projet	Maximum CFI Contribution / Contribution maximale de la FCI
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#### **Algoma University**

Equipment to Support Research in Aquatic Neurophysiology	\$30,677
<b>1 project</b>	<b>\$30,677</b>

#### **Brock University**

Markerless Motion Capture Equipment for Large Scale Field Testing	\$68,372
Infectious Disease Research Suite at Containment Level 3	\$101,654
Analysis of Extracellular Vesicle Function in Human Health and Disease	\$125,000
<b>3 projects</b>	<b>\$295,026</b>

#### **Carleton University**

Application of Raman Spectroscopy to Improve Food Integrity	\$110,000
Development and Evolution of the Amphibian Skeleton	\$75,002
Aerosol Jet Printed Nano Sensor Platforms for Point-of-Care Diagnostics, and Monitoring Health and Environment	\$100,000
Multitouch Displays for Collaborative Clinical Decision-Making	\$86,921
Carleton Tides Centre for Oligonucleotide and Peptide (Tides) Cancer Diagnostic and Therapeutic Agents	\$120,000
Quantitative Functional MRI Technologies for Assessing Brain Health in Depression	\$125,000
Cultural Heritage Informatics Collaboratory	\$69,660
Mitigating the Negative Impacts of E-waste Through Sustainable Biotechnology	\$125,000
MARVEL - The Mixed and Augmented Reality and Virtual Environments Lab	\$158,473
Development of Innovative Methods in Emissions Estimations using Remote Sensing	\$75,001
The Individual Variation Across the Lifespan Project: A Collaborative Examination of Language Acquisition and Use	\$40,001
Defining How We Establish and Maintain a Healthy Gut	\$75,001
EquiCon: Equitable Conservation for a Sustainable Future	\$75,002
<b>13 projects</b>	<b>\$1,235,061</b>

## Lakehead University

Laboratory for Physiological Macroecology	\$119,591
Research Infrastructure for Multitrophic Studies of Boreal Forest Landscapes	\$174,996
Microscope, and Trace Gas Analyzers (Nitrous Oxide and Ammonia) for Photonics and Bio-Photonics Research Facilities	\$166,892
Design and Development of Powertrain Technologies for Heavy-duty Electric Transportation Applications	\$100,017
Laboratory for Climate Change Mitigation and Air Pollution Control	\$124,986
Low-dose Direct Conversion Radiation Medical Imaging Detectors	\$124,574
<b>6 projects</b>	<b>\$811,056</b>

## McMaster University

Lab for Innovative Neurophysiological Study of Leadership	\$302,379
High Throughput High Content Multi-dimension Microscopy	\$400,000
Additively Manufactured Homes for Mobility and Equity (AM-HOME) Laboratory	\$300,000
The Role of Brain-viscera Coupling in Shaping Subjective Experience and Social Interaction	\$200,000
Infrastructure for Sustainable E-commerce Last-mile Deliveries	\$117,000
ConTElab: Engineering Contractile Tissues for Tissue Regeneration and Wound Healing	\$243,701
Nuclear Receptor Pathways for Plasticity: Linking Environmental Stressors with Compensatory Responses	\$140,000
Novel Tools and Methods for Characterizing the Exposome	\$390,000
Laboratory for the Modification and Characterization of Proteins and Cells at Biomaterial Interfaces	\$200,000
Ocular Imaging & Preclinical Evaluation	\$210,550
Platform for Molecular Bacteriology Research	\$149,319
Platform for Antimicrobial Discovery from Symbiotic Microbes	\$372,656
Laboratory for Metabolism and Translational Science - LiMTS	\$400,000
Wound Infection Biomarker and Drug Discovery Facility	\$353,628
Hydrogen Energy Advances Lab Infrastructure	\$150,000
<b>15 projects</b>	<b>\$3,929,233</b>

## Ontario College of Art and Design (OCAD University)

Mobile Projection Mapping and Communities: Reinforcing Diversity and Cultural Heritage through Urban Artistic Projects	\$55,716
<b>1 project</b>	<b>\$55,716</b>

## Queen's University

Seeing the Invisible: A Precision Medicine Informatics for Cancer Biomarkers Anchored in Time and Space	\$75,001
Thermo-hydro-mechanical Coupled Rock Performance: Transforming Design of Geological Storage and Resource Developments	\$200,000
Building a Stratospheric Balloon-borne Instrumentation Laboratory	\$75,001
Geophysical Monitoring and Modelling of the Subsurface of Urban Environments and Large Infrastructures	\$100,000
Facilitating Bidirectional Communication for Fast and Flexible HumanRobot Collaboration	\$152,000
Systems for Seismic Protection and Resilience of Mass Timber Structures	\$125,000
Harnessing Macrophage Biology to Control Neuroinflammation	\$150,000
Fast-charging Infrastructure for Electric Vehicles	\$97,536
Smart Networks for Scientific Computing	\$152,000
FEWA Contaminant Biogeochemistry Lab: Holistic Assays of Hg Biogeochemical Cycling in Forest Ecosystems	\$120,000
Identifying Predictors of Recurrence and Developing Novel Therapies for Patients with Brain Tumours	\$100,000
Time-dependent Rock and Joint Behavior in Deep Underground Environments	\$175,600
Neuro-immunity in Cancer and Allergy	\$250,000
Exploring the Landscape of Electrochemical Reactions and Improving Process Sustainability through Paired Synthesis	\$125,000
Controlling Detonation Instabilities: Experiments and Models to Enable Next-generation Engines	\$80,000
Resilient Agile Aerial Autonomy	\$125,000
Functional Structures Based on Main-group Supramolecular Interactions	\$125,000
<b>17 projects</b>	<b>\$2,227,138</b>

## Toronto Metropolitan University

Towards Resilient Buildings Under Different Wind Scenarios	\$76,000
Development of Collapsible Returnable Packaging for Direct-to-Consumer (D2C) Product Distribution	\$88,000
Emissions' Characterization of Alternative Fuels at High Pressures	\$76,000
Advanced and Rapid Fabrication Platform of Electrode Structures for Fuel Cells and Electrolyzers	\$92,026
Development of Autonomous Drones for Indoor Environments	\$116,059
Maternal Fetal Diagnostics	\$88,961
Affordable Living Integrated Residential Testbed (ALIRT)	\$395,060
<b>7 projects</b>	<b>\$932,106</b>

## Trent University

Gas Flux Instrumentation for Novel Investigations of the Plant-soil-atmosphere Continuum in Agroecosystems	\$113,737
<b>1 project</b>	<b>\$113,737</b>

## University of Guelph

Infrastructure to Establish a Lab in Comparative Neurogenesis	\$87,595
Advanced Robotic Imaging Systems to Support High Throughput Screening Approaches	\$101,392
An Integrated UAV-Hyperspectral-LiDAR System for Forest Health Monitoring	\$116,258
Investigating Biopolymer Interactions for the development of Biosensing and Nucleic Acid-based Therapeutic Applications	\$261,510
Investigating the role of Innervation in the Post-injury Microenvironment during Regeneration	\$96,276
Sportacle: An Integrated Database and Analytics Platform	\$54,121
Modelling Occupancy of an Endangered Lemur Species Community	\$31,503
Towards a Mechanistic Understanding of Global Change: Effects of Warming on Biological Processes Across Scales	\$90,000
Single-Crystal X-ray Diffractometer: Critical Infrastructure for Advanced Materials Research at the University of Guelph	\$305,000
<b>9 projects</b>	<b>\$1,143,655</b>

## University of Ottawa

Effort Perception & Automatic Behaviors in Physical Activity Across the Lifespan	\$400,000
An Ultra Sensitive Microfluidics based Biosensor for Foodborne Pathogen Detections	\$460,597
Assistive-device Biocompatibility Lab: Moving into the Future	\$383,636
Zero-carbon Building Facility	\$481,422
Molecular Determinants and Effects of New Treatment Approaches in Psychiatry	\$364,422
A Front-lead Field-based Research Program Exploring the Intersection of Geologic Fluids and Society	\$108,359
Identifying Best Music Education Programs for Rehabilitation Strategies in Children and Older Adults	\$329,050
A Cryo-EM Drug Discovery Pipeline Targeting the Acetylcholine Receptor for the Treatment of Neuromuscular Disease	\$292,058
Large-scale Modelling of Lyme Disease under Climate, Environmental and Socio-demographic Changes	\$151,603
The Composition and Distribution of Platinum-group Minerals in Rocks	\$136,950
Role of Histone Chaperones in Neurodevelopment	\$95,000
Single-cell Analysis of Epithelial-mesenchymal Plasticity	\$700,000
<b>12 projects</b>	<b>\$3,903,097</b>

## University of Toronto

Assessing Plant Responses to Environmental Change	\$336,000
Multi-scale Biomechanics of Orthopaedic Sports Medicine Laboratory	\$200,000
Enhancing Community Research Access to Neuroimaging in Aging using Portable Low-field MRI	\$222,063
The Indoor Microbiology and Environmental Exposures Laboratory	\$100,000
Revealing the Molecular Basis of Postnatal Brain Maturation with Innovative Genetic and Optical Approaches in Zebrafish	\$125,000
Neural Scene Representations for Active 3D Imaging	\$200,000
Determining the Role of the Immune Microenvironment in Oral Cancer and Periodontitis using Tissue Spatial Phenotyping	\$250,000
Program to Study the Interaction of Genes with the Environment and Immunity and Various Pathological Conditions	\$350,000
Examining Movement in Complex and Cluttered Environments to Inform Policy, Clinical Interventions and Clinical Education	\$79,495
Establishment of Metallurgical Materials and Corrosion Laboratory Group for Corrosion Microscopy Studies	\$100,000
Elucidating the Effects of Anthropogenic Stressors on the Behaviour and Physiology of Aquatic Animals	\$239,868
High Throughput Imaging Cell Sorter for Single Cell Analysis of Immune Responses in Infection, Autoimmunity and Cancer	\$240,000
Multifunctional Materials for Biomedical Applications	\$400,000
4D Quantitative Cardiovascular Physiology Centre	\$650,000
Next Generation Computational MRI for Rapid Neuroimaging and Image-guided Therapy	\$155,000
A Molecule to Mouse Approach to Study the Intracellular Localization of Genetic Code Interpretation in Mammalian Cells	\$400,000
Facility for Quantum Materials and Device Assembly from Atomically Thin van der Waals Layers	\$800,000
Advanced Cold Spray Facility	\$200,000
Imaging Biophysical Determinants of the Innate Immune Response	\$799,597
AI Platform for Mapping, Tracking and Predicting Circuit Alterations in Alzheimer's Disease	\$155,000
A Computer Graphics Perspective on Entanglement of Slender Structures	\$600,000
Enabling a High-throughput Drug Discovery Pipeline for Targeting Disease-related Human Proteins	\$439,721
Real-time Multi-faceted Probes of Quantum Materials	\$365,000
2p-RAM for Whole-brain Single-neuron Imaging of Behaving Zebrafish to Study Neural Mechanisms of Cognitive Behaviors	\$512,059
Integrated Circuits for Wireless Brain Implants with Multi-modal Neural Interfaces	\$100,000
Healthy Life Trajectories Initiative (HeLTI) Analytics Platform	\$375,507

# INNOVATION

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Accelerating Biomanufacturing Innovation Through Enhanced Capacity for Scale-up and Downstream Bioprocess Engineering	\$400,000
H-SCREEN: A Platform for High Throughput and High Content Imaging-based Small Molecule Screens for Disease Modulation	\$755,636
Automation and Equity in Healthcare Laboratory	\$150,000
Infrastructure for Structural and Functional Virology Research hub	\$650,000
3P Lab: Centreing Power, Privilege and Positionality for Health Equity Research	\$353,169
Ramsey Laboratory for Environmental Archaeology (RLEA): How Human-Environment Interactions Shaped Plant-Food Production	\$132,000
Next-generation Real-time Closed-loop Personalized Neurostimulation	\$220,000
Ultra-sensitive Cryogenic Detector Development for Dark Matter and Neutrino Experiments	\$312,000
Helium Recovery System for the Biomolecular NMR Facility	\$350,000
<b>35 projects</b>	<b>\$11,717,115</b>

## University of Waterloo

Cave Automatic Virtual Environment Research Nodes (CAVERNs)	\$125,000
Live-imaging Confocal Microscopy of Dynamic Process for Regenerative Medicine Application and Biotechnology Development	\$163,000
Scalable Infrastructure for Data-intensive Systems	\$220,000
Hyperspectral Imaging for Quantifying Methane from Anthropogenic and Natural Sources	\$300,000
Resolving Ecosystem Scale Greenhouse Gas Dynamics of Human-impacted Freshwaters	\$100,000
Dual-arm Mobile Manipulation: Human-centered Interaction for Human Spaces	\$100,000
Development of a Comprehensive Laboratory for Evaluation of Tissue Mechanics	\$100,000
Emerging Natural Interactive Technologies to Support Older Adults' Social Connections and Digital Inclusion	\$80,000
A Transmission Electron Microscope Optimized for the Visualization of Unstained Biological Specimens	\$451,157
Engineering Multifunctional All-liquid Soft Materials and Ultra-light Weight Aerogels	\$49,635
An Indoor Air Quality and Occupant Exposure Testing and Monitoring Laboratory	\$100,000
Imaging System for the Development of Medical Microrobots	\$80,000
<b>12 projects</b>	<b>\$1,868,792</b>

## University of Western Ontario (The)

Mass Spectrometer for the Support of Small Molecule Synthesis	\$454,348
Infrastructure to Support Data Science-driven Health Research Projects at Western University	\$486,166
Accelerating Clinical Translation of <sup>129</sup> Xe/ <sup>19</sup> F MRI for Addressing Lung and Brain Disease	\$321,725

# INNOVATION

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Body, Mind, and Movement Research Laboratory	\$239,308
Investigating Placental Development in Normal and Pathological Pregnancy	\$208,262
Laboratory for Integrative Studies of Avian Communication	\$145,928
Two-photon Calcium Imaging in Marmosets	\$604,742
Multiscale Electrochemical Degradation Laboratory	\$422,261
Protein Conformational Regulation after Phosphorylation: A New Paradigm in Cell Signaling and Drug Discovery	\$800,000
<b>9 projects</b>	<b>\$3,682,740</b>

## University of Windsor

A Microwave Plasma Reactor with Characterization and Simulation Systems for Synthesis of Graphene and CO2 free Hydrogen	\$165,556
Field to Lab Environmental DNA/RNA Facility: Applications from Microbes to Metazoans	\$80,557
Laboratory for Integrated System of Human-driven Vehicles and Connected and Autonomous Vehicles	\$245,137
Biomolecular Interaction Analysis Platform to Innovate Therapeutic and Diagnostic Solutions	\$90,555
Infrastructure for Solid-State Materials Discovery and Characterization Facility	\$80,556
Facility for Research on Affordable and Sustainable Housing using Construction Printing Technology	\$139,369
<b>6 projects</b>	<b>\$801,730</b>

## Wilfrid Laurier University

Neural Tracking of Dynamic Social Behavior in Degu Motor Cortex	\$63,030
Bioelectric Control of Cell Fate and Tissue Plasticity	\$75,000
Equipment for Understanding Innate Immune Pathway Modulation using Nanoparticles	\$80,000
The Neural Correlates of Auditory Feedback Control of Speech Across the Lifespan	\$80,000
* FLAGship Digital Media Lab	\$29,774
<b>5 projects</b>	<b>\$327,804</b>

\* Funding for Research Infrastructure Associated with SSHRC Research Support

## York University

Infrastructure for Innovative Nanomaterials for Energy and Environment	\$138,585
Infrastructure for High-Definition Microplastic Detection (HD-MPD) and Identity Analysis	\$126,254
Landscapes in Transition: Environmental Sensitivities Due to Climate Change	\$198,161
<b>3 projects</b>	<b>\$463,000</b>



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**NOTE:**

As part of this announcement, an additional \$10,061,305 was awarded under the Infrastructure Operating Fund (IOF), a mechanism that assists institutions with the incremental operating and maintenance costs associated with the new infrastructure.