

## John R. Evans Leaders Fund Backgrounder

### Ontario

The Canada Foundation for Innovation (CFI) Board of Directors approved a contribution of \$28,772,247 to support 129 infrastructure projects in the province.

Project Title	Maximum CFI Contribution
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#### **Algoma University**

Integrative Approaches to Disentangle Network Structure in Territorial Songbirds	\$32,040
Infrastructure to support the Multi-stressor Conservation Physiology Laboratory	\$74,998
<b>2 projects</b>	<b>\$107,038</b>

#### **Carleton University**

Identification and Quantification of Organic Molecules from Microbial Ecosystems	\$75,001
The Audience Experience Lab: Transforming Digital Media Production for Film and Games	\$76,500
Urban Aeroconservation for Regionally Migrating Bats	\$75,001
Accessible Automated Construction Site Studio (AACeSS Lab)	\$98,000
Sulfate Through Time	\$110,000
Advanced Vision Integration for Road Safety (AVIRS)	\$99,694
<b>6 projects</b>	<b>\$534,196</b>

#### **McMaster University**

The Indigenous Digital Dialogue Lab	\$75,000
Characterizing Mechanisms of Thrombosis and Hemostasis using Multiphoton Intravital Microscopy	\$479,927
Innovative Avian Mobile Laboratory to Study the Direct and Indirect Effects of Climate Change and Pollution on Birds	\$150,000
Brain Mechanisms of Rhythm Perception: New Methods to Understand the Impact of the Motor System on Auditory Perception	\$220,000
Advancing Energy Systems for use in Unsteady and Turbulent Environments	\$150,000
Laboratory for the Development and Deployment of Magnetically Actuated Soft Robots for Medical Applications	\$250,000
Space-time Mechanisms of Pattern Control during Vertebrate Embryo Segmentation	\$200,000
Infrastructure to Enable High-dimensional Genomic and Epigenomic Analyses to Understand Placental Dysfunction	\$92,415

# INNOVATION

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Single photon counting confocal microscope for time-resolved fluorescence studies of gene transcription	\$345,860
Laboratory for Advanced Nano-Optical Biosensing	\$773,924
Development of the Bio-Resources Engineering Laboratory	\$146,263
<b>11 projects</b>	<b>\$2,883,389</b>

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

Completing Next Generation Holographic Technology and XR Research	\$50,636
<b>1 project</b>	<b>\$50,636</b>

## Queen's University

Permafrost Hydrogeology in a Changing Climate	\$90,000
The Fractured Rock and Cryo-hydrogeology Lab	\$100,000
Nanobubble-aided Advanced Photocatalytic Treatment for Emerging Contaminant Removal	\$100,000
Diverse, Perceptive and Intelligent Wireless Infrastructure for 6G and Beyond	\$220,000
Magnetic Micromanipulation System for Mechanical Measurement and Stimulation of Brain Tumor	\$120,000
** Impact of Radiation in Energy and Advanced Technologies	\$800,000
*** Integrated Photonics for Massive Entanglement Generation	\$402,000
** Imaging Immunity in Chronic Disease and Cancer	\$800,000
Technologies for Neuromusculoskeletal Disorders	\$144,000
Cardiac Macrophage Subset Maintenance and Expansion in the Healthy and Injured Heart	\$175,000
Developing and Analytical Imaging Laboratory for Cultural Heritage Science	\$100,000
<b>11 projects</b>	<b>\$3,051,000</b>

\*\* Funding for Research Infrastructure Associated with CERC Research Support  
Financement de l'infrastructure liée au soutien à la recherche du CERC

\*\*\* Funding for Research Infrastructure Associated with NSERC Research Support  
Financement de l'infrastructure liée au soutien à la recherche du NSERC

## Toronto Metropolitan University

Cardiovascular Biomechanics Measurement Facility for Blood Flow and Biomechanical Testing	\$78,000
Studying Phenotypic Heterogeneity and Aging in Budding Yeast with Fluorescence-activated Cell Sorting	\$95,000
<b>2 projects</b>	<b>\$173,000</b>

## University of Guelph

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Investigating Glial-mediated Purinergic Dysfunction in Neurodevelopmental Disorders	\$79,429
Gaining a Deeper Understanding of Emotional Processing Deficits in Two High-risk Samples of Youth	\$45,096
Minimizing Environmental Emissions from Livestock Species in Canada	\$100,000
Automated Microbioreactor Platform for Accelerated and Scalable Bioprocessing of Agri-food Residues	\$126,837
Highly Sensitive High-throughput Biosensors for Early Cancer Diagnostics and Food Safety Applications	\$102,000
The Effect of Grazing Intensity and Fertilization on Carbon Sequestration in Agricultural Grasslands	\$114,492
Establishing the Growth Eating & Appetite Together (GrEAT) Laboratory to study infant and child growth and development	\$141,693
Infrastructure for Building Environmental Monitoring	\$75,058
Understanding the Interactions between Hypertension and Huntington's Disease	\$79,429
Environmental Sentinel Surveillance and Forecasting of Climate-sensitive Waterborne and Vector-borne Zoonotic Diseases	\$150,000
The role of Nitrogen and Carbon Quality in Greenhouse Gas Production following Permafrost Thaw in Northern Peatlands	\$112,000
Infrastructure to Establish Lab in Plant Systematics and Evolution of Wild Crop Relatives	\$84,000
The Effects of Temperature on Ecological and Evolutionary Dynamics	\$84,000
Functional Characterization of Neural Circuits Underlying the Perception of Control During Stress	\$80,000
Developing Novel Immunotherapies for Brain Cancers	\$82,000
<b>15 projects</b>	<b>\$1,456,034</b>

## University of Ottawa

Laboratory for Low-carbon Energy Infrastructure	\$540,275
NMR Tools to Enable Innovative Molecule, Material, and Process Design	\$416,750
Bioenergy & Value-added Products from Non-conventional Organic Wastes, Toward Circular Economy/Climate Change Adaptation	\$391,264
In vivo Two-photon Imaging and Manipulation of Different Movement-related Ensembles in 3D in Awake Mice	\$585,000
Behavioral and Experimental Macroeconomics	\$139,848
Deciphering Targetable Molecular Communication Between Muscle Stem Cells and their Niche Environment to Improve Health	\$228,000
Stable Isotopes to Study Changing Northern Environments	\$601,848
** Attosecond X-ray Photonics	\$800,000
Designing, creating, and testing hPSC-based endothelial cell therapeutics for liver disease	\$338,000

Ultrafast Multidimensional Infrared Spectrometer for Catalysis and Quantum Materials	\$340,000
Analytical Tools for Lignin Biology and Engineering	\$110,000
Shedding New Light on Photosynthesis with Multidimensional Coherent Spectroscopy	\$340,000
<b>12 projects</b>	<b>\$4,830,985</b>

*\*\* Financement de l'infrastructure liée au soutien à la recherche du CERC  
Funding for Research Infrastructure Associated with CERC Research Support*

## University of Toronto

Impacts of Environmental Change on Organismal Movement	\$212,000
21st Century Challenge for Dentistry: Breaking the Cycle of Irreversible Dental Tissue Loss	\$370,645
Sex and Sex-specific Factors Influencing Brain Health Across the Lifespan	\$800,000
Structural and Functional Assessments of Diabetic Skin Microvasculature using Photoacoustic Imaging	\$102,936
Biointerfacing Materials for Drug Delivery Lab	\$150,000
An Advanced Laboratory to Enable Novel Radio Telescopes for Cosmology and Time-domain Astrophysics	\$400,000
Machine Learning for Nanoporous Materials Design	\$100,000
Heterochromatin Regulation in Development and Inheritance	\$160,000
Sarcopenia and Musculoskeletal Interactions (SaMI) Collaborative Hub	\$275,080
Targeting Translation for Tissue Regeneration and Repair	\$515,757
HFE Visual Design Studio	\$94,021
Advancing Neuromodulation for Pediatric Rehabilitation	\$238,995
Cardiovascular Exercise Physiology Laboratory – Individual Differences in Oxygen Delivery During Physical Activity	\$281,936
Infrastructure to Identify New Targets and Therapies for Neovascular Eye Diseases	\$380,000
Universal Filters for Storage Engines	\$112,800
Dissecting Mechanisms of Cancer Development using Genetically Engineered Mouse Models	\$270,054
Scalable Discrete Integration Engines	\$110,000
A Collaboratorium to Improve Problem Framing in Engineering Design	\$93,092
Molecular Regulation of Clonal Propagation and Dissemination in Human Breast Cancer	\$131,537
Next-generation Vibrational Imaging Platform for Biomedical Research and Applications	\$630,000
Development of a High-resolution Imaging Spectrograph.	\$280,000
Mechanisms Regulating the Stem Cell Niche in Tissue Regeneration and Aging at Single Cell and Spatial Resolution	\$225,000

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Advanced Imaging and Manipulation of Hippocampal Activity Patterns Linking Memories Across Time	\$733,941
The Open Virome - Infrastructure for Planetary-Scale Virus Surveillance	\$80,000
Anticipating and Buffering Stress: From Synapse to Behaviour	\$785,715
Innovative Strategies and Simulation Technologies for Sensory-cognitive Health of the Aging Population	\$251,241
Advancing Fall Prevention Research	\$270,121
Effects of Climate Change, Migratory Plasticity, and Habitat Modification on Monarch Butterfly Migration	\$200,000
Enabling Precision Diagnostics/Image-Guided Therapy: Advanced Computational Infrastructure for Musculoskeletal Health	\$155,000
Upgrade Glacios-2 200 keV Cryo-electron Microscope	\$800,000
Mechanisms of Beta Cell Dysfunction in Diabetes	\$260,000
Interrogating Cellular Pathways with Pathogenic Effectors	\$250,000
Molecular Logic and Functions of Transcriptional Adaptation	\$475,000
Large Memory Compute Nodes for Generation of Quantum Machine Learning Data	\$500,000
<b>34 projects</b>	<b>\$10,694,871</b>

## University of Waterloo

Scalable Biomanufacturing for a Net-zero Economy	\$84,721
Developing Synthetic Symbiotic Bacterial Consortia for Mixed Plastic Upcycling	\$80,000
Uncertainty-aware Structural Identification Testbed for Bridge Infrastructure	\$110,000
Injectable Filamentous Hydrogels for Regenerative Medicine	\$92,689
Developing Next Generation of Green Pavement Technologies	\$105,000
Translational Approaches to Studying Chronic Pain	\$100,000
Social Robots for Supporting Older Adults and Children	\$95,000
Integrating Behavioural Science and Digital Health Approaches to Predict and Promote Physical Activity	\$100,000
Creation and Validation of the Waterloo Dress Database to Support Impression Formation Research	\$22,000
Developing a High-throughput Genome-wide Screening System to Study Stress Defense Mechanisms in <i>Clostridioides Difficile</i>	\$150,000
CPU-GPU Accelerated Optimal Process Design and Control to Rigorously Model Space-time	\$80,000
<b>11 projects</b>	<b>\$1,019,410</b>

## University of Western Ontario (The)

Western X-ray Diffraction Unit	\$800,000
Console for 15.2 T preclinical MRI	\$800,000
Next-generation Operation and Management of Urban Mobility	\$200,000

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The Plant Stress Biology Facility	\$209,461
Robotic Joint Mechanics Simulator with Dynamic Imaging	\$184,830
Portal to Humanistic Immersive Experiences	\$104,211
<b>6 projects</b>	<b>\$2,298,502</b>

## University of Windsor

Automation of Functional Genomics	\$75,001
The Cell-type-specific Regulation of mRNA Translation in Health and Disease	\$75,001
Understanding Reaction Mechanism and Properties of Low-carbon Cements/Concretes	\$75,001
High-precision infrastructure for temperature and dynamic stability testing of micro sensors	\$165,045
Integrative Cerebrovascular Function	\$75,159
Facility for Research on Sustainable and Smart Pavement Materials	\$75,001
Acoustic Monitoring for Long-term Biodiversity and Conservation Research	\$75,001
STRIVE: Sustainable Transportation Research - Integrated Vehicular Electronics	\$75,001
<b>8 projects</b>	<b>\$690,210</b>

## Wilfrid Laurier University

Comparative Analysis of Chemosensing Mechanisms by Vertebrate Neuroepithelial Cells	\$77,215
Mechanisms of Social Behavior in Snakes	\$84,909
Deepen our Understanding on Plant-pathogen Interactions in Adapt to Climate Change	\$75,648
<b>3 projects</b>	<b>\$237,772</b>

## York University

Persistence of Recent Experiences in Memory via Spontaneous Thought	\$90,376
Curating Reconciliation through XR Immersive Technologies	\$83,308
Establishment of an AI-guided Personalized Medicine Discovery Facility	\$140,000
Data Analytics in SErvices (DAISE)	\$76,520
Methods to Create Mutations in Cells to Understand and Treat Disease	\$100,000
Marginal MediaWorks	\$100,000
An Advanced Platform for Biomolecular NMR Spectroscopy	\$155,000
<b>7 projects</b>	<b>\$745,204</b>

### NOTE:

As part of this announcement, an additional \$8,631,674 was awarded under the Infrastructure Operating

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Fund (IOF), a mechanism that assists institutions with the incremental operating and maintenance costs associated with the new infrastructure.