

RESEARCH INTERNSHIP PROGRAM

SUMMER 2027

Polytechnique Montréal is one of Canada's leading research engineering universities. Founded in 1873, Polytechnique Montréal has the largest engineering student body in Quebec and is highly ranked for the number of Canada Research Chairs in Engineering and the scope of its research activities. The world needs creative and innovative engineers more than ever. Polytechnique is nurturing them in Montreal, a city consistently ranked among the top student cities in the world!

Every year, Polytechnique's research laboratories welcome over 250 students from other universities wishing to put into practice the technical and scientific knowledge acquired in their studies. The research conducted, supervised by a Polytechnique professor and respectful of all health and safety measures, emanates from a real societal or industrial need, and is carried out in the lab or *in situ*.

ELIGIBILITY CRITERIA

- Enrolled in one of Polytechnique Montréal's partner universities
- Be officially nominated by your home university before applying to this program. To do so, please contact your International Relations Office or your Internship Office
- Completed at least two years of an engineering undergraduate program or be registred in a graduate program (Master or Ph.D.) according to the projects' university cycle requirements
- Enrolled in a full-time program and will continue to be enrolled after your internship
- Minimum GPA of 2.75 out of 4 (or equivalent)
- Meet the required skills for the selected research project(s)
- Be highly proficient in English or French, with language skills sufficient to successfully conduct university-level engineering research and fully engage in the host lab environment

DURATION

The recommended duration of the internship is 4 months, with 4 possible starting dates **between April and July**. Once the admission to the program has been confirmed, no change in the duration or the dates can be made. Please confirm the research duration with your home university Program Coordinator before applying. Note that it is a full-time research internship in Montreal (7 hours a day, 35 hours a week).

Selected candidates may receive one of the 25 scholarships available annually!

Maximum amount of the scholarship: 6,000 CAD for 4 months (prorated at 1 500 CAD/month).

APPLICATION PROCEDURE

Follow the link below to browse the list of research projects offered by area(s) of expertise and/or university cycle and apply by **January 15, 2027**.

polymtl.adv-pub.moveonca.com/rip

Please note that the professor(s) supervising the selected project(s) may schedule an online meeting as part of the selection process.

POLYTECHNIQUE MONTRÉAL

For any questions regarding your application, please contact:
Polytechnique Montréal International • *point@polymtl.ca*

LIST OF RESEARCH PROJECTS

CHEMICAL ENGINEERING DEPARTMENT

CHE 01	Biomaterials & Biomedical Device Design for Tissue Engineering and Biosensing
CHE 02	Bundle twisted Scaffold for Ligament Tissue Engineering
CHE 03	Development of a scalable prospective database for life-cycle impact assessment
CHE 04	Electrified catalytic partial oxidation (CPOX) of natural gas
CHE 05	Extraction and separation of critical metals from electronic waste
CHE 06	Highly Conductive and Magnetic, Polymer based Electromagnet
CHE 07	How do positively buoyant particles rise?
CHE 08	Ink-jet Printed Flexible Organic Electrochemical Transistor for Neuromorphic Functions
CHE 09	Organic Bioelectronics for Traumatic Brain Injury (TBI) Monitoring
CHE 10	Predicting liquid-liquid separation in electrolytes using computational thermodynamics
CHE 11	Printable soft bioelectronic device
CHE 12	Process Development of a Micro gas to liquid technology
CHE 13	Self-healing conductive polymers for neuronal repair
CHE 14	Surface and interface engineering of materials
CHE 15	Towards highly accurate simulation of turbulent flows in industrial geometries
CHE 16	Visualization tools for complex phase diagrams for lithium-ion battery electrolytes
CHE 17	Water Removal Membrane reactors (WRZM) for Carbon Dioxide Conversion

CIVIL, GEOLOGICAL AND MINING ENGINEERING

CGM 01	Dam Fragility portfolio Across Eastern and Western North America
CGM 02	Dam safety assessment via multi-fidelity surrogate modelling
CGM 03	Developing the Atlas of Human Movements on Roads and Streets
CGM 04	Development of advanced respirometric techniques for biological wastewater treatment
CGM 05	Effect of climate conditions on mine drainage in filtered tailings
CGM 06	Flow-through experiments on the mobilization of ultra-short chain PFAS
CGM 07	Fluid-induced seismicity in subsurface geonergy technologies
CGM 08	Geostatistical Methods for Complex Earth Patterns: Internship in Data Analysis
CGM 09	Levee Risk Assessment and Pre-Screening Under Climate Change
CGM 10	Mapping Housing Types and Seismic Features Worldwide
CGM 11	Modeling the leaching of emerging contaminants from contaminated soils
CGM 12	Modeling the risk of exposure to bioaerosols in wastewater
CGM 13	Multiphase flow in porous media for hydrogen and CO_2 storage
CGM 14	Optimizing hospital sink drains to reduce antimicrobial resistance
CGM 15	Pesticide exports to groundwater: the role of the sediment-groundwater interface
CGM 16	Porewater extractions of PFAS-contaminated soils: evaluating risks to groundwater resources
CGM 17	Predicting Deterioration in Municipal Water Infrastructure
CGM 18	Rain harvesting systems in agricultural settings
CGM 19	Recovering Real World Road User Positions in Traffic Videos
CGM 20	Revealing Complex Patterns in Geotechnical Data: A Novel Geostatistical Framework
CGM 21	Street Function Analysis Based on Direct Observation
CGM 22	Training decision-making agents on mechanistic models of wastewater treatment
CGM 23	UHPFRC : From material development to structural applications

COMPUTER ENGINEERING AND SOFTWARE ENGINEERING DEPARTMENT

GIGL 01	Adaptive Robot Learning in a Multi-Robot Ecosystem
GIGL 02	Adaptive Verification for Safety-Critical Systems using Digital Twins
GIGL 03	Agency and Creativity in AI-Assisted Development
GIGL 04	Agentic Processing of Structured and Unstructured Data
GIGL 05	Automated Framework for Health-Data Regulation Compliance Testing
GIGL 06	Diagnosing and Mitigating Failure Modes in Agentic systems
GIGL 07	Educational robotics with real robots
GIGL 08	Foundation Models for Swarm Robotics
GIGL 09	From Social, Ethical, Empathetic, and Cultural requirements to LLM Guardrails
GIGL 10	Hierarchical Robot Mapping via 3D Gaussian Splatting and Scene Graphs
GIGL 11	Latency-Tolerant Lunar Teleoperation using Generative World Models and VA-Driven Recovery
GIGL 12	Machine Learning and Interaction of Large Dataset of Medical Images
GIGL 13	Multi-Robot Systems and Swarm Roboticse
GIGL 14	Next-generation cybersecurity: Harnessing AI to Defend Against Large-Scale Threats
GIGL 15	Realistic Test Scenario Generation for Social, Ethical, and Empathetic LLMs
GIGL 16	Robust data-driven robotic object manipulation
GIGL 17	The Portiloop - an AI-based closed-loop brain stimulation system
GIGL 18	User experience (UX) design for and with AI

ELECTRICAL ENGINEERING

DGE 01	Active navigation and perception strategies for autonomous object search
DGE 02	AI-Based Detection and Mitigation of Cyber-Physical Attacks in PEMD Systems
DGE 03	AI-Based Health Monitoring and Prognostics for Aerospace Battery Systems
DGE 04	Binarized neural networks : implementation, optimization and explanation
DGE 05	Brain interfaces for neuro-motor restoration
DGE 06	Data-Driven Fault Detection and Diagnosis in Power Electronic Converters
DGE 07	Lunar and Cislunar Communications Beyond Terrestrial Assumptions
DGE 08	Mean Field Games in Renewable Energy Systems
DGE 09	Multi-Agentic AI Systems for Interdisciplinary Scientific Discovery
DGE 10	Network Resilience in Multi-Layer Non-Terrestrial Networks
DGE 11	NeuroAI — Brain-Inspired Machine Learning
DGE 12	Power System Modeling and Grid Interaction of AI Data Centers
DGE 13	Privacy-preserving distributed signal processing and control
DGE 14	Quantitative Susceptibility Imaging in the Spinal Cord
DGE 15	Rare-Earth Free Motor Design and Control for Lightweight Aircraft
DGE 16	Sensitive instrumentation for measuring quench in superconducting cables

ENGINEERING PHYSICS DEPARTMENT

PHY 01	High-throughput 3D imaging of DNA in flow

MATHEMATICS AND INDUSTRIAL ENGINEERING

MAGI 01	Ecosystems beyond platforms: understanding the concept through practitioner discourse analysis
MAGI 02	Exploring simulation as a decision support tool
MAGI 03	Integrating Occupational Health and Safety Criteria into Project Portfolio Management

MECHANICAL ENGINEERING DEPARTMENT

MEC 01	A new-generation personal service robot: increasing the mechatronics maturity
MEC 02	Advanced portable neuro-rehab robot: human-machine interface
MEC 03	Advanced portable neuro-rehab robot: machine-human interface
MEC 04	Aerodynamics and aeroelasticity studies through wind tunnel testing
MEC 05	Analysis of Manufacturing Process and Machine Interaction
MEC 06	Deep learning algorithms for predicting flows through porous media
MEC 07	Developing a canine manikin to improve cardiac resuscitation
MEC 08	Digital molding: next-generation production method in orthotics
MEC 09	Finite Element Neural Network Method (FENNM)
MEC 10	Kirigami parachutes
MEC 11	Mechatronic and AI contributions to a body weight support
MEC 12	Next-gen of walking orthotics and BWS: determining weight supports requirements
MEC 13	Pellet-extrusion-based 3D printing of thermoplastic composites
MEC 14	Personal service robot base for mounted devices on power-chair
MEC 15	Shape morphing drones/aerial vehicles
MEC 16	Soft Coral Fluid Structure Interaction
MEC 17	Sustainable 3D printing materials
MEC 18	Vibrations suppression methods in machining