

Partnering to Power Ontario's Digital Future



August 2025

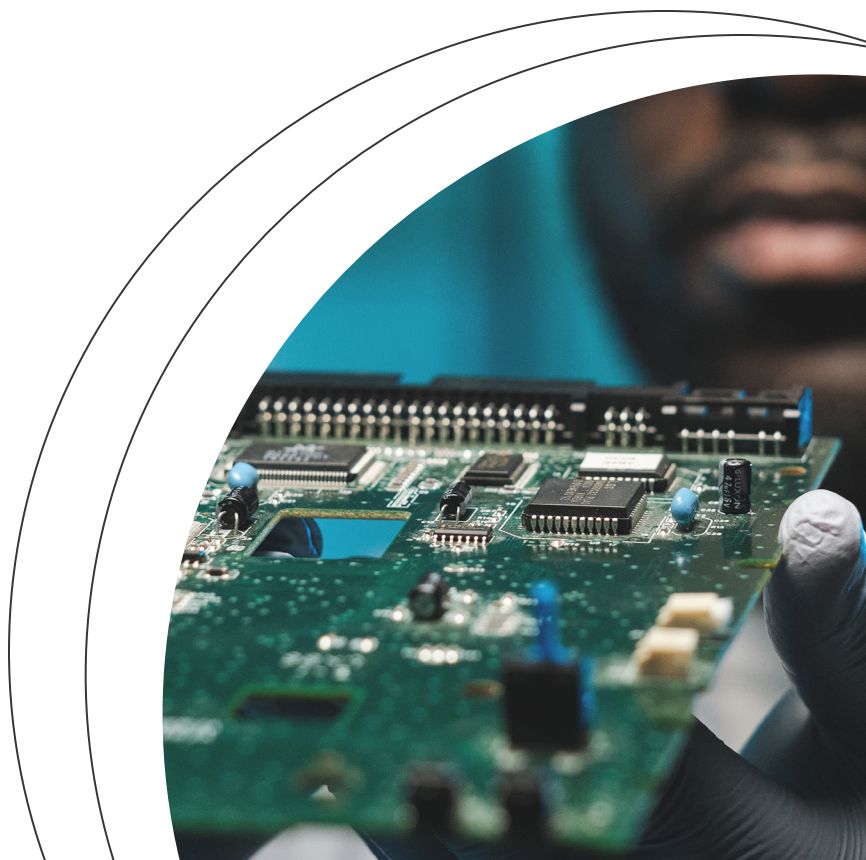
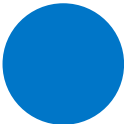


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Introduction

From AI and cybersecurity to modernizing digital infrastructure, Ontario universities are driving real-world technological solutions that strengthen communities, fuel economic growth and prepare our province, and its regions, for the future.

Across the province, university students, researchers, and entrepreneurs are working alongside industry leaders to shape cutting-edge systems, services and technological innovations that improve lives and build economic resilience across Ontario's regions.

At the heart of this impact is a steady pipeline of future-ready talent, dynamic partnerships, and ground breaking research that's driven by universities and is vital to helping Ontario's regions harness innovation to meet today's challenges and seize tomorrow's opportunities.

This work extends far beyond the classroom. Through work-integrated learning, entrepreneurial ventures, and cutting-edge academic programs, university students and alumni are bringing fresh ideas and in-demand skills directly into communities — supporting regional priorities and advancing technological progress on the ground.

Universities are also deeply embedded in their communities, building strong local partnerships and

responding to regional needs, especially those related to digital transformation and equitable access to technology. From community-based research to targeted technology supports, universities are helping local economies succeed in a rapidly evolving digital landscape.

Whether it's supporting the digital transformation of public services, bridging the digital divide in rural communities, or growing local innovation hubs, universities are key partners in building a stronger, more resilient Ontario.

This booklet highlights the many ways universities are helping municipalities and regions strengthen their technological infrastructure and lead through innovation. From advancing research to developing talent, these stories showcase how universities are working with local partners to support digital transformation and economic growth across the province.

To explore resources or connect with university experts who can help address your community's unique technology and talent needs, please refer to the Appendix for program and research lead contact information.



Developing Highly-Skilled Talent for a Digitized Future

A strong pipeline of highly skilled, future-ready talent is critical to building and sustaining the digital infrastructure that communities depend on. Ontario's universities are equipping students with real-world experience through hands-on learning, upskilling projects and innovative digital programs, courses and more. With opportunities to tackle every day challenges and master emerging technologies such as AI, gaming, and data analytics, students gain the skills and experience needed to build more connected and resilient communities across the province.



Entrepreneurship Incubator Prepares Students for Immersive Technologies

To fuel tech-driven entrepreneurship and support Brampton's growing innovation economy, [Algoma University's](#) Startup GameJam is a two-day event where students are given in depth training in design and develop original video games while building essential hands-on technical and creative skills.

The initiative equips students with advanced skills to succeed in evolving industries such as gaming, retail, entertainment, education, health care, manufacturing, and fosters tech-driven entrepreneurship. At the event, students receive intensive training on game development, market research, business strategy, and pitch creation, then put their skills to the test by building game prototypes in just two days and presenting their ideas to expert judges from Unity Technologies Inc. and Algoma University.

With the gaming industry projected to exceed \$300 billion globally by 2026, Startup GameJam is an innovative opportunity to foster creativity, entrepreneurship, and technical expertise for students but also to foster more tech-driven businesses and startups for the local economy.

For more information, contact: vinay.paramanand@algomau.ca



Experiential Learning Course Helps Shape Elections

New e-voting insights were shared with the City of Hamilton by [Brock University](#) students through a Canadian Politics in the Digital Age course where they looked into the use of voting technology in future municipal elections — helping students gain hands-on experience with innovations that could transform democratic participation and transparency.

Though a partnership with the City of Hamilton and voting technology firm Neuvote, students participated in mock elections and then analyzed security and privacy, voter use and participation, election experience, accessibility and election evaluation. They received training sessions with the City of Hamilton, Neuvote and other experts, including a software engineer and a municipal administrator from the City of Markham, where verifiable online voting was implemented in 2022.

By considering the local context and community needs, students developed recommendations that were both innovative and practical for the City of Hamilton. With elections becoming increasingly digital, this hands-on learning opportunity not only allowed students to benefit from the real-world experience of election evaluation, but it also helped the local community benefit from the knowledge generated to ensure online voting systems are secure, transparent and trustworthy.

For more information, or if you are interested in being a future municipal partner of Canadian Politics in the Digital Age, contact Professor Nicole Goodman: ngoodman2@brocku.ca



Re-Skilling Professionals for the AI-Driven Economy

As industries across Ottawa and beyond undergo rapid AI-driven transformation, the [University of Ottawa's](#) Faculty of Engineering is empowering professionals with the skills needed to stay competitive. Its AI reskilling programs — ranging from specialized micro credentials to online master's degrees in Applied AI and Digital Transformation — are equipping working adults with practical knowledge in machine learning, NLP, computer vision, and ethical AI deployment. This upskilling initiative ensures local workers can lead digital change rather than be left behind.

By targeting professionals from diverse sectors — finance, health care, marketing, and public services — these programs help bridge workforce skill gaps felt across municipal and regional organizations. This supports local resilience as governments and local businesses embrace data analytics, automation, and digital innovation.

Beyond technical instruction, these programs emphasize responsible AI — teaching learners not just how to build tools, but how to do so ethically and effectively in real-world contexts. Graduates return to local organizations equipped to implement AI solutions that enhance public services, strengthen operational capacity, and unlock regional growth.

For more information, contact: engineering.grad@uottawa.ca



Fueling Ontario's Booming Gaming Industry

As one of Canada's fastest-growing creative sectors, the video game industry is creating new economic opportunities for communities across the province, and [OCAD University](#)'s gaming event Level Up Showcase plays a key role in bridging student innovation with regional industry demand.

Designed to connect emerging talent with leading studios, publishers, and tech companies, the event gives students a real-world opportunity to present their games, gain valuable industry exposure, and take meaningful steps toward careers in the gaming industry.

For many students, Level Up marks their first direct entry point into the professional world as they engage with top industry professionals, receive valuable feedback on their work, and build connections that often lead to internships, job offers, and long-term collaborations. In a sector with over 820 active video game studios across Canada and one that contributed \$5.1 billion to the country's GDP in 2024, these early connections are critical to launching successful careers.

The event also allows industry professionals to experience student work firsthand, exchange insights, and identify promising new talent that is contributing to the growth of local companies and the development of a skilled, creative workforce.

For more information, contact:
studiomanagement@ocadu.ca



Market Intelligence to Help Local Businesses Grow

With a goal to help solve real-world problems while bridging the gap between classroom learning and the real-world needs of Durham's local businesses, [Trent University](#) is equipping students with practical, hands-on experience through initiatives like the Trent Durham Business Intelligence Challenge (TDBIC). At this one-day pitch competition, students presented practical, low-cost data solutions tailored to the needs of resource-limited local businesses, helping level the playing field for small enterprises across the Durham Region.

Built on weeks of collaboration with local business leaders and support from Addison Marketing Solutions, the winning project, SIVIA — a proposed platform dubbed the "Costco of Market Intelligence" — aggregates consumer reviews and third-party data to give restaurants access to the insights they need to grow and compete.

Through this collaboration, students applied their skills in data analysis, strategic thinking, and communication to develop actionable solutions for business partners. As the program grows, it promises to deepen partnerships between Trent University and the region's business community — fostering talent, innovation, and inclusive economic development across Durham.

For more information, contact:
mmgt@trentu.ca



Equipping Students and Entrepreneurs with Critical IP Tools

Innovators, entrepreneurs, and creators now have access to free intellectual property (IP) support across Waterloo, Brantford, and Milton through a new initiative that connects local needs with emerging student talent.

[Wilfrid Laurier University](#)'s Lazaridis Intellectual Property Lab is helping community members protect their ideas and bring them to market by offering accessible guidance on patents, trademarks, copyrights, and more – giving students hands-on access to free IP education and business strategy support and empowering them to protect, strengthen, and commercialize their ideas.

Staffed by students and led by expert faculty, the lab not only fills a key gap for underserved businesses and artists, but also provides students with hands-on experience applying their classroom learning to real-world challenges. This gives learners across disciplines the foundational tools to navigate the often-complex world of intellectual property – critical knowledge in a region known for its high concentration of startups and innovation.

The lab also addresses a key barrier for student-led startups and small businesses: the high cost of intellectual property support that often delays or prevents early IP strategy. Unlike traditional legal clinics, the IP Lab blends strategic business insight with practical IP education, tailored to support those without access to costly legal resources.

By collaborating with startup founders, faculty, and community members and helping local organizations navigate IP strategy and commercialization, the Lab is strengthening the region's capacity for innovation and ensuring more great ideas have the opportunity to grow.

For more information, contact: bmattalo@wlu.ca



Ontario Universities: Building Ontario's Digital Future

From AI-driven urban planning to cybersecurity networks and immersive game design, Ontario's local regions are being shaped by the digital infrastructure emerging from university talent and research. Municipalities across the province are turning to artificial intelligence, next-generation STEM graduates, and tech innovation to strengthen services, grow local economies and address pressing community needs.

At the heart of this transformation are Ontario's universities — training the next generation of engineers, data scientists, and creative tech leaders, and partnering with local governments to apply innovative research in real-world settings.

Whether it's monitoring water quality with AI tools, designing electric vehicles, securing digital systems, or developing new technologies, university graduates and researchers are laying the foundation for a more connected and competitive Ontario.

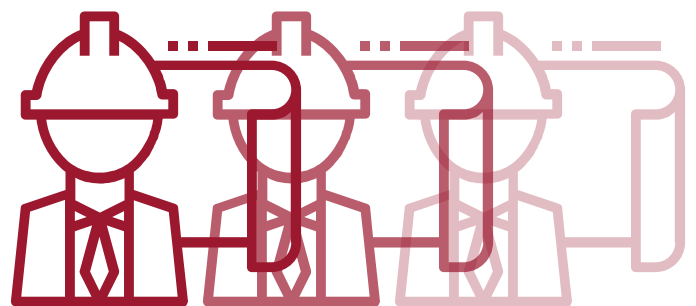
With surging enrollment in STEM fields, dedicated programs in cybersecurity, and world-leading AI expertise, Ontario's universities are ensuring communities across the province have access to the talent, innovation, and partnerships needed to thrive in a rapidly evolving digital economy.

Leading in Artificial Intelligence

- Did you know? AI is an engine of economic growth in Ontario with nearly **\$9.8 billion** in venture capital investments in AI between 2019 to 2025, according to the Vector Institute.
- Ontario universities are leading the development of AI talent, with nearly **5,000 new AI master's graduates between 2019 to 2025**, according to the Vector Institute.
- Ontario researchers and institutions are helping shape **global AI governance, ethics, and safety frameworks**.
- Ontario's universities are at the forefront of developing **ethical, responsible AI systems** and training the next generation of **data scientists, machine learning engineers, policy leaders and more**.

Jobs of the Future

- According to a recently released report by the World Economic Forum on [The Future of Jobs](#), AI specialists, cybersecurity professionals, and software/app developers are among the fastest-growing occupations, driven by **86% of employers seeing AI and information processing as highly transformative by 2030**.
- Nearly **80,000 AI jobs were created in Ontario between 2019 to 2025** and **70 new AI startups were founded**, according to the Vector Institute.



Training the Next Generation of STEM Talent

- Total **STEM enrollment** at an Ontario university has more than **doubled** in the last two decades – a 76% increase since 2010, according to Ontario Universities' Enrolment Data.
- By 2030, Ontario is projected to need over **233,000 new STEM professionals** – a gap universities are working to fill through targeted education and municipal collaboration, according to [Stokes Economics data from 2021](#).
- Engineering and Applied Sciences enrollment has shown a steady increase, growing from around **25,000 students** in 2000–01 to over **63,000** in 2023–24, according to Ontario Universities' Enrolment Data.
- Universities are working directly with municipalities to **align talent pipelines** with local digital infrastructure goals, from broadband expansion to transit tech.

Cybersecurity: Protecting Ontario's Digital Future



- Ontario universities offer **specialized cyber security programs**, training students in fields like quantum computing, risk assessment and ethical hacking.
- Several universities also house **cybersecurity incubators**, supporting student entrepreneurs and municipal partnerships that help strengthen local cyber resilience.
- Ontario graduates are helping municipalities **protect critical systems** – from water treatment plants to smart grid infrastructure.

Real-World Impact

- University researchers are partnering with municipalities to design **AI-enhanced urban water systems, satellite-based communications** for remote areas and **data-driven transit planning**.
- Universities are working on **nuclear microreactors** and **smart grid technology** to power cleaner, more reliable energy in underserved communities, deploying digital twin simulations and sensor networks to monitor and maintain infrastructure before problems arise – saving costs and improving safety.

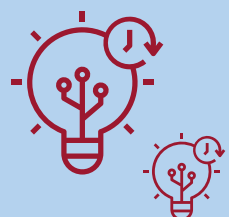
Powering Creative Tech and Digital Media Skills for a Booming Video Game Industry

- When Ontario universities are producing the next generation of **game developers, animators, and designers** for one of Canada's fastest-growing industries.
- Students are being recruited directly into **top companies** like Epic Games, Ubisoft, Gameloft, and TD Bank's digital teams.
- Game design education is **advancing interactive simulation, training, and learning tools** that support municipal needs in emergency response, health, and planning.

A Digital Infrastructure Talent Engine

Ontario's universities are not only **preparing students for the jobs of tomorrow** – they are **driving innovation** that's improving quality of life today.

Through powerful collaborations with municipalities and industries, universities are **solving real problems while helping build digital infrastructure** that is smart, secure and innovative.



Partnering to Strengthen Digital Progress Across Ontario's Communities

From exploring nuclear microreactors for remote communities' growing energy needs to advancing smart urban water systems and bridging the digital divide through satellite-based communications, universities across Ontario are working hand-in-hand with local partners to strengthen the digital infrastructure that communities rely on every day. These partnerships are addressing local challenges, from improving broadband access in rural areas to developing data-driven tools for smarter public services – ensuring that communities of all sizes are equipped to thrive in an increasingly digital world.



Enhancing Local Innovation with AI-Powered Business Solutions

To help reshape how communities approach public safety, risk management, and smart infrastructure, [Carleton University](#) has partnered with March Networks – an intelligent video surveillance and AI enabled business, unlocking new innovations that could advance AI research and grow local tech talent.

The collaboration is accelerating the development of generative AI tools – like the AI Smart Search platform – that deliver robust, natural language-based video analytics. To strengthen and scale this innovation, a Carleton researcher from Systems and Computer Engineering is leading the development of an automated AI testing framework. This framework simulates real-world conditions, like changing environments, poor image quality, and complex object interactions – to ensure the system is accurate, reliable, and adaptable across sectors. The technology enables intuitive searches using voice, text, or image uploads, dramatically improving how businesses, institutions, and public services access and act on key information.

These business solutions are helping build a stronger, more inclusive tech talent pipeline in the Ottawa region while also helping local organizations optimize operations, improve security, and make smarter, data-driven decisions using AI tailored to real-world challenges in the region. By engaging students in AI research and product testing, the initiative is fostering career-ready skills that can serve regional businesses and public sector organizations.

For more information, contact: vpri@carleton.ca



Delivering High-Speed Internet to Remote Communities

With an aim to revolutionize internet access for remote and northern communities, a partnership between [McMaster University](#) Engineering and the National Research Council of Canada is developing a mobile laser-based system to boost data transfer rates and ensure faster, more resilient connectivity in remote and rural regions.

Leveraging laser-based satellite communication technology rather than traditional radio signals, this project aims to deliver fibre-optic level connectivity without laying physical cables. A major step in this research is the development of OGRE (Optical Ground Receiver Enhanced), a mobile ground station that will be tested in Ottawa-Gatineau before expanding to the North. OGRE will help scientists understand and model the effects of Canadian weather on laser-based satellite signals, ensuring systems are reliable even in harsh climates.

By eliminating the barriers posed by terrain, distance, and climate with innovative optical ground receivers, the initiative promises to close the connectivity gap in underserved regions.

With internet speeds in many Northern areas up to eight times slower than the national average, this advancement could dramatically improve access to critical services and empower small towns, First Nations communities, and rural residents – bringing opportunity and access to every corner of Ontario and Canada.

For more information, contact
engcomms@mcmaster.ca



Digitizing Fire Safety in North Bay

North Bay residents will benefit from faster, more reliable fire hydrant inspections through a new real-time, digital system developed by [Nipissing University](#)'s Environment and Sustainability Post Baccalaureate students, that replaces the city's outdated paper-based process. In partnership with the City of North Bay's Geographic Information System (GIS) team, the innovative platform enhances emergency response, improves infrastructure maintenance and strengthens public safety across the community.

The digital solution uses GIS to map fire hydrant data and features a user-friendly dashboard accessible to firefighters and city staff on smartphones and computers. Developed in close collaboration with the City of North Bay, the tool streamlines operations and supports more effective planning. It enables local staff to make informed decisions that enhance transportation planning and municipal infrastructure management – ultimately improving quality of life for residents. At the same time, the hands-on learning experience helps students learn complex geospatial technologies, including GIS, GPS and remote sensing.

Beyond upgrading inspection practices, the initiative introduces sustainable innovation and digital infrastructure to city services – setting the stage for future collaborative projects and stronger community resilience.

For more information, contact:
avprigs@nipissingu.ca



Building Compact Nuclear Solutions to Power Remote Communities

To help remote and Indigenous communities' transition from diesel to cleaner, more sustainable power, researchers at [Ontario Tech University](#) are developing ultra-compact "nano-reactors" that generate clean nuclear power at lower costs. These portable devices have the potential to deliver reliable electricity and heating without reliance on fossil fuels, offering a transformative shift toward energy resilience for underserved communities.

The proposed Canadian Uranium Energy Bridge (CUEB) module is designed for seamless deployment in small communities, off-grid data centers, mining sites, and telecommunications hubs. Roughly the size of a shipping container and capable of producing hundreds of kilowatts, each unit can be connected to match growing energy demands.

With zero operational emissions, a modular build, and projected lifecycle costs that rival diesel systems, CUEB presents an accessible and flexible clean energy solution that can support energy independence for communities that have historically lacked access to sustainable power options, helping ensure a more equitable and resilient clean-energy future across the province.

For more information, contact:
les.jacobs@ontariotechu.ca



Boosting Urban Resilience with Smart Blue Roofs

"Smart Blue Roofs" – innovative systems that store rainwater on rooftops to prevent urban flooding, support non-potable water reuse, and reduce energy costs – have been pioneered through a partnership between [Toronto Metropolitan University](#) and Credit Valley Conservation. This green infrastructure is delivering benefits to cities like Mississauga, helping local governments reduce stormwater runoff, enhance climate resilience, and improve environmental sustainability.

Communities stand to gain more than just flood mitigation: these systems can power toilets and irrigation and provide cooling through evaporation – essential in combating urban heat islands (where urban areas become significantly warmer than surrounding rural areas, especially at night). The collaboration is also looking into water quality, testing microbial levels across treatment cycles to challenge existing building code restrictions. By showing that water can safely be stored longer than 24 hours with effective treatment, this research could unlock greater operational flexibility and efficiency for municipalities.

The next phase aims to advance the building code and expand Smart Blue Roofs from individual buildings to whole neighbourhoods, effectively reducing flood risks city-wide and fostering climate-resilient urban design. By collaborating with engineers, architects, public health experts, and policymakers, this will help communities adopt scalable, science-backed infrastructure solutions, and transform environmental innovation into tangible community resilience.

For more information, contact:
dima.balaa@torontomu.ca



Modernizing Ontario's Power Grid

Amid unprecedented strains on Ontario's electrical grid from extreme weather and growing demand, the [University of Toronto](#)'s new Grid Modernization Centre integrates emerging clean technologies to ensure Canada smoothly transitions to a decarbonized, decentralized and digitalized grid.

Equipped with state-of-the-art technology and deep research expertise, the Grid Modernization Centre is accelerating the development, testing, and commercialization of clean energy solutions. The initiative fast-tracks the integration of green technologies into Ontario's electricity grid, generates new jobs in the clean energy sector, and delivers vital data to help policymakers navigate the energy transition.

By working closely with industry partners, including utilities, regulators, municipalities, manufacturers, and small and medium-sized enterprises the Centre also supports innovation across a wide range of areas. These include EV charging infrastructure, renewable integration, energy storage, electrolyzers, microgrids, cybersecurity, and advanced protection and control systems – laying the groundwork for a smarter, more sustainable, and resilient energy future.

For more information, contact:
info@cpe.utoronto.ca



Creating Efficient Cities Through Living Lab

A new smart monitoring initiative from [Western University](#)'s Campus as a 'Living Lab' helps build smart cities using smart technology to maintain roads, bridges, and buildings more efficiently and effectively. The project aims to pilot and perfect new technologies, not only to maximize sustainability at Western University, but also to gather valuable information for staff in Facilities Management and other potential partners, like the City of London.

By transforming campus roads and buildings into a real-world testbed, the team is using an advanced urban scanning framework featuring lidar, cameras, and the Internet of Things sensors to collect real-time data on road conditions, air quality, and infrastructure health. These tools offer a low-cost, non-invasive alternative to traditional inspections, helping cities make more informed decisions around repairs, traffic flow, and environmental health – without disrupting daily operations. With expertise from engineering, cyber security, media studies, and information science, the project also tackles broader questions around data ethics and smart city design and gives local policy makers and city engineers access to actionable insights on infrastructure condition and environmental factors.

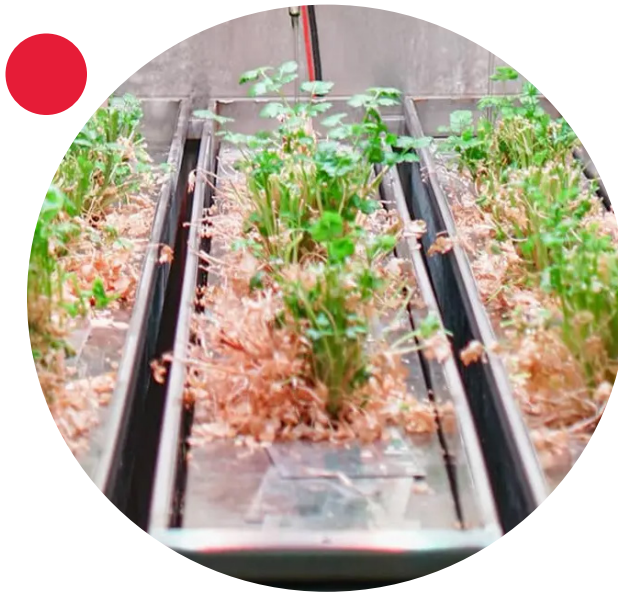
Backed by AI and sensor advances, this non-contact monitoring approach could enable municipalities across Ontario to inspect infrastructure more efficiently and cost-effectively, even under harsh weather conditions – supporting safer, smarter, and more resilient communities.

For more information, contact:
sustainability@uwo.ca



Driving Digital Transformation Through Research and Innovation

Across Ontario's local regions, university-led research and innovation are playing a vital role in strengthening digital infrastructure. From working to bridge the digital divide and providing vital internet services to remote communities, to advancing robotic systems that tackle housing affordability, university-led research is helping communities address complex, real-world challenges with forward-thinking technologies. Through collaborative research, innovation hubs, and talent development programs, universities are helping municipalities and regional organizations modernize systems, expand connectivity, and build digital capacity.



Innovative AI Tools for Public Good

By harnessing AI, [University of Guelph](#) researchers are developing new AI-driven innovations to protect regions from disease outbreaks, food insecurity, and climate-related disasters, helping improve the safety and quality of life in Ontario's communities.

One research team is using AI to analyze online search and social media trends to forecast avian flu outbreaks before they happen, helping protect food systems, reduce economic losses, and keep grocery prices stable. Other Guelph researchers are developing interactive dashboards that allow local health authorities to model how measles, flu, RSV, and COVID-19 might spread, enabling smarter vaccination strategies and earlier interventions. These advances give communities powerful tools to prepare for and prevent health crises.

Another team is using satellite imagery and machine learning to improve flood prediction — particularly in rural or remote areas with limited on-the-ground data. By offering faster, more accurate forecasts, these tools help municipalities prepare infrastructure, inform residents, and mitigate costly damage.

Together, these AI tools are enabling public health officials, municipalities, and farmers to respond earlier and more effectively to emerging threats — preventing widespread harm and strengthening local resilience.

For more information, contact: vpres@uoguelph.ca



Closing the Digital Divide for Rural Residents

Making fast, reliable 5G and future 6G internet accessible to every corner of Ontario is the goal of a team of researchers from [Lakehead University's](#) Faculty of Engineering.

Recognizing the disparity in internet connectivity between urban and underserved rural communities, the research team is developing new 3D wireless network architecture – integrating terrestrial systems with UAV-assisted (drone-based) and satellite connectivity – to deliver high-speed internet to regions, especially Indigenous, rural, and northern communities, where ground-based infrastructure is not feasible.

The cost-effective, scalable solution focuses on optimizing resource allocation, reducing interference, and enhancing energy efficiency through innovative drone-based networks and energy-harvesting technologies. With improved connectivity, local businesses can expand, more students can access online education, and health care providers can deliver better services.

Researchers are also exploring how to leverage these new 3D networks to support disaster management or infrastructure failures – ensuring that first responders and communities stay connected when it matters most.

For more information, contact:
communications.research@lakeheadu.ca



Homebuilder Robot Aims to Transform Construction for Northern and Remote Communities

To make housing faster, smarter, and more accessible – especially in Northern and remote communities, a team at [Laurentian University's](#) McEwen School of Architecture is developing a robotic homebuilding system that combines machine vision with sustainable, locally sourced materials.

The portable, cable-driven parallel robot (CDPR) is designed to automate large-scale fabrication and assembly – right onsite in Northern Ontario communities. The prototype robot autonomously identifies, lifts, rotates, and places structural wall panels, making construction faster, safer, and more cost-effective. By combining advanced design, material science, and robotics, the team tackles challenges like harsh winters, high labour costs, and an aging workforce that hinder rural housing development. Using bio-based materials and automation, this innovation lowers housing costs and cuts carbon emissions, addressing the urgent need for climate-friendly building solutions.

With a user-friendly interface operable by non professionals via tablets, audio commands, or augmented reality, the technology can be adopted by local builders and community members, rather than requiring specialists. This work also supports the modernization of construction by reducing reliance on repetitive, physically demanding tasks while attracting a new generation of tech-savvy workers. With 22 per cent of residential construction workers expected to retire in the next decade, especially in regions like Northern Ontario, innovative solutions like this offer a scalable solution to Ontario's labour shortage and housing crisis.

For more information, contact:
architecture@laurentian.ca



Transforming Public-Sector Infrastructure Through Supercomputing

By advancing the national supercomputing landscape and our ability to process large amounts of data quickly, [Queen's University's](#) Computing at Extreme Scale Advanced Research (CAESAR) lab is enabling high performance, AI-powered analytics that can streamline city planning, simulate environmental events, and optimize energy distribution. This translates to more efficient and responsive infrastructure that directly improves regional services and resilience.

Through the development of advanced test bed systems, the CAESAR lab is enabling rapid deployment and testing of cutting-edge supercomputing technologies. This infrastructure supports local companies, particularly startups in gaining a critical edge in fields such as AI, materials science, and health care.

As supercomputing revolutionizes how we tackle the world's toughest challenges – from accelerating climate modeling and advancing medical research to optimizing energy systems and powering next generation AI, this model creates a powerful research-to-application pipeline, accelerating real-world solutions, improving cost-efficiency, and generating tangible economic and societal benefits within local communities – catalyzing innovation in sectors from environmental monitoring to smart city development and reinforcing Ontario's digital economy.

For more information, contact:
ryan.grant@queensu.ca



Fueling Ontario's EV Economy Through Battery Innovation

To support Canada's efforts to scale the EV industry and build a greener economy, the Ontario Battery and Electrochemistry Research Centre (OBEC) at the [University of Waterloo](#) is advancing sustainable battery technologies.

Researchers are focusing on addressing key challenges in battery technology by developing alternatives to lithium-based batteries such as zinc and sodium-based systems to enhance performance, reduce costs, and decrease reliance on scarce materials.

In partnership with automakers and energy companies, OBEC is also training the next generation of talent to power the expanding EV sector. This work will help municipalities transition to clean transportation, attract green investment, create local jobs, and meet the technological and economic demands of a green economy.

By aligning research with industry needs and fostering collaboration, OBEC aims to support the advancement of clean energy technologies and contributes to Ontario's capacity in sustainable battery development and helping communities navigate the transition to a low-carbon economy.

For more information, contact:
lfnazar@uwaterloo.ca



Improving The Health of Great Lakes Communities

Communities across the Great Lakes region are better equipped to protect public health, drinking water, and local ecosystems through the [University of Windsor](#) research that provides municipalities with the tools and data they need to respond quickly to emerging challenges.

An expanded wastewater surveillance program is helping municipalities detect illnesses like measles, avian flu, and RSV earlier, allowing for faster public health responses. Researchers are using real-time monitoring systems in Lake Erie to track harmful algal blooms and other water quality issues, providing water treatment plants with critical information to protect drinking water for residents across Essex County and beyond.

They are also assessing environmental risks such as agricultural runoff and supporting initiatives in sustainability, housing, and economic development through municipal partnerships. Their work informs fish consumption guidelines, supports the Great Lakes fisheries, and contributes to landmark projects like Canada's first national urban park in Windsor. This community-focused research is strengthening the health, safety, and long-term resilience of municipalities across the Great Lakes basin.

For more information, contact:
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Enhancing Emergency Preparedness with Real-World Simulation

To enhance response speed and efficiency, while helping communities respond more effectively when disasters occur, [York University](#)'s Victor Phillip Dahdaleh Advanced Disaster, Emergency and Rapid Response Simulation (ADERSIM) Lab and Emergency Operations Centre simulates challenges like extreme weather or public health crises, allowing local governments, first responders, and private sector teams to practice real-time emergency coordination.

Equipped with modelling software, AI-enhanced dashboards, extended reality simulations, drone-integrated sensing, and rapid communication technologies, the ADERSIM Lab provides decision-makers with critical data during emergency scenarios. This enables real-time monitoring of infrastructure and resource flow, giving municipal and regional leaders the tools they need to make informed, lifesaving decisions. The centre also offers specialized training programs for students and practitioners, strengthening local capacity to manage emergencies.

Beyond response, the lab serves as a hub for collaboration, connecting municipalities with researchers to co-develop technologies tailored to community needs, from evacuation route mapping to emergency logistics and risk assessment models. The lab is also helping create opportunities for student internships and workforce training to build local emergency management capacity.

For more information, contact:
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Appendix

Developing Highly – Skilled Talent for a Digitized Future

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Partnering to Strengthen Digital Progress Across Ontario's Communities

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Driving Digital Transformation Through Research and Innovation

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