

**NBIF**

# Q3 Report

F22



# Venture Capital



**The 3rd quarter saw continued momentum in investments, with more incredible opportunities for venture capital than ever before in New Brunswick.**

**We invested \$3M into a total of seven companies in the last quarter**, including a promising female cleantech founder who recently graduated from the Energia Accelerator program, who we featured later in this report. These companies leveraged our investment for an additional **\$76.3M from private sector investors bringing the total venture capital investment into our portfolio companies this quarter to \$79.3M**. This significant investment activity supported critical follow-on financing rounds

for the region and will continue to drive revenue growth and job creation throughout dynamically evolving sectors.

Additional industries we invested in include AI, electric vehicles, cybersecurity, business operations, and MedTech. Additionally, our team successfully ran a francophone Breakthru competition, reinforcing our strong partnership with UdeM in the entrepreneurial space.



## VENTURE CAPITAL AND INNOVATION VOUCHER FUND INVESTMENTS

COMPANY NAME	NBIF INVESTMENT	PRIVATE SECTOR INVESTMENT	INDUSTRIES	THE INNOVATIONS	
Alongside	\$750,000	\$8,050,000	Recruitment	Complete candidate sourcing solution with smart job distribution and impressive employer branding capabilities.	
Potential Motors	\$500,000	\$3,000,000	Electric Vehicles & AI	The new DNA for electric off-road vehicles.	
TrojAI	\$750,000	\$2,250,000	Cybersecurity & AI	Robustness and security as a pathway to trusted AI.	
Sonrai Security	\$379,950	\$62,800,000	Cybersecurity & AI	An enterprise cloud security platform for companies running on AWS, Azure, and Google Cloud.	
Parados Cerebral Solutions (Breakthru)	\$25,000		Medtech	Injury prevention and recovery tools.	
Brunvalley	\$100,000	\$200,000	Fintech/Insuretech	Disruptive software solutions focused on fintech and insuretech.	
Gaia Refinery	\$50,000		Cleantech	Uses greenhouse gas as a feedstock to produce high-value fuels and products.	
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				RESEARCH PARTNER (INSTITUTION)	THE INNOVATIONS
Nutrento*	\$79,681	\$19,670	Food & Beverage	RPC	Establish profitable manufacturer of protein, lipids and chitin/chitosan.
637792 NB Ltd.*	\$10,797	\$16,049	Aquaculture	HMSC	Form an economic freshwater park for aquaculture.
PMC Energy*	\$80,000	\$20,000	Energy	UdeM	Optimization of commercial building automation systems.
RC Woodworking Hand Tools Inc*	\$80,000	\$20,000	B2C	RPC	Novel woodworking handle designs.
JP Holdco*	\$57,600	\$14,400	Agri-tech & AI	NHRI	AI-based predictions of tree health and proposed remediation.
Dynamik Robotik Solutions*	\$80,000	\$20,000	AI	UdeM	Machine vision applications of detection and localization of seafood parts.
Group Savoie*	\$80,000	\$20,000	AI	UdeM	Robotization of wood pallet production line.
<b>TOTAL</b>	<b>\$3,023,028</b>	<b>\$76,300,000</b>	<b>TOTAL INVESTMENT</b>		<b>\$79,323,028</b>

\*Innovation Voucher Fund



TROJ.AI



**James Stewart**  
CEO



**Stephen Goodard**  
COO

## TrojAI



With the recent advances in the artificial intelligence (AI) industry, many companies are bringing AI solutions to market without understanding the significant security threats.

TrojAI is an artificial intelligence (AI) cybersecurity company founded in 2020 that is developing defensive tools that can detect and defend against adversarial attacks within computer vision systems. To date, the company has assembled a founding team, graduated from Techstars Montréal AI accelerator, the Rogers Cyber Catalyst program, the Global Affairs Canadian Technology Accelerator (CTA) for Cybersecurity, secured its first two enterprise customers, and most notably closed a \$2.64M seed round led by Build Ventures (Halifax) and Flying Fish Ventures (Seattle).

We were happy to invest \$750,000 in their latest round, to provide the company with working capital to build out its product and business development teams as they push to gain early market traction. We previously participated in their pre-seed round, bringing our total investment in TrojAI to \$950,000, putting them in the top 20% of our portfolio for dollars invested.

TrojAI's platform is making waves in the AI industry as it's the only software designed to identify threats and attack vectors while providing potential solutions and optimizing training models. Their robustness assessment solutions measure the ability of a computer vision model to withstand adversarial attacks that are often too small to detect. The platform remains on guard against potential threats, including embedded Trojan attacks on self-automated cars that could confuse their systems and endanger public safety. Additionally, TrojAI has identified a rising number of attacks on robotics as AI becomes increasingly prominent within the Internet of Things solutions.

As artificial intelligence continues to evolve, TrojAI is setting the standard for security and leading the pathway to more trustworthy AI.



Dr. Qinhong (Tammy) Cai

## Gaia Refinery



The NB Climate Action Plan supports two objectives: reducing GH gas emissions and maintaining economic growth, Gaia Refinery plans to uphold both.

Through the development of their novel bioreactor, the female-founded cleantech start-up effectively removes CO<sub>2</sub> directly from the atmosphere and simultaneously converts it to high purity methane.

While the bioreactor is currently prototyping at bench scale, Gaia is validating the use of renewable energy with a cascade of microbial catalysts to make carbon capture, conversion, utilization, and storage (CCUS) a profitable venture, as high-purity methane sells for a premium to major tier suppliers in industries such as aerospace and power electronics.

The company's CEO, Dr. Qinhong (Tammy) Cai recently relocated to Saint John, NB while completing the Energia Accelerator program this past fall. Through our partnership with Energia, we were eager to provide Gaia with a \$50,000 investment, which will be used to accelerate R&D efforts and leverage additional non-dilutive grants.

Since closing our investment in November, Gaia Refinery shows no signs of slowing down. They recently won the Innovacorp/BioEnterprise Green Shoot Grant (40K) and have opened an R&D space at the Verschuren Center in Nova Scotia, one of the Nation's best equipped facilities to support bridging the gap from bench to commercialization of clean technology. Dr. Cai's relationship with the Verschuren Center and leveraging of non-dilutive opportunities is putting our capital to effective use as she prepares to raise a larger round of financing.

# Applied Research



## Applied research activity sees a surge in the 3rd quarter of every year.

Almost all our funds have opened and since closed with multiple notices of decisions leaving our teams' inboxes and landing in those of New Brunswick's innovative researchers. This year is no exception.

**We awarded a total of \$1.35M in Q3, which leveraged another \$3M from the private sector for a total investment of \$4.4M into applied research. We focused primarily on early-stage commercialization and climate impact research.** With support from partners at Opportunities New Brunswick (ONB) in securing a contribution from the federal carbon tax credit, we were able to support cutting-edge applied research projects on climate change mitigation strategies and the development of clean technology.

We **funded a total of 15 projects** in the quarter that **involved 16 non-academic partners** and covered diverse areas, including climate-induced lobster migration patterns, AI to assess energy use in buildings, and using peat moss to minimize coastal erosion. Eight of those fifteen projects are commercialization projects, including promising university spinouts and private-sector-led innovations. Within the universities, we are helping academics to launch businesses in new drug development, metadata analysis, and virtual therapy.

## APPLIED RESEARCH INVESTMENTS

NBIF FUND	NBIF INVESTMENT	LEVERAGED INVESTMENT	INDUSTRIES	THE INNOVATIONS
Climate Impact Fund	\$889,920	\$1,843,100	Cleantech	Algorithms that can be used to assess the energy use and inefficiencies in residential buildings using a holistic approach, development of a method to better assess the rate of lobster maturity and how the distribution of lobsters in the Bay of Fundy changes over the course of their maturation, scaling up a method of using sphagnum peat moss as a natural, cultured solution toward minimizing coastal erosion.
Talent Recruitment Fund	\$165,000	\$752,300	Law and Digital Justice, Health Sciences + Aging, Smart Grid	Legal Innovation Laboratory; Research Centre for Smart Grid Technologies, and innovations centred on novel genetic and pharmacological modulators.
AI Pre-Voucher	\$40,000	\$80,333	AI	Disease detection in cannabis, digital solutions transforming a healthcare organization's paper documents into digital content.
Early-Stage Commercialization Fund	\$100,000	-	Pharmaceutical, ICT, Social Sciences	Pharmaceutical drug, efficient way to evaluate and report on the quality of metadata, self-led virtual therapy platform.
Lab to Market	\$69,000	\$349,900	Automation Engineering, Craft Alcohol	Robotic tunnel inspector for assessing the integrity of structures from confined spaces and enhanced methods of quality control and knowledge translation for craft brewers.
Corporate Cleantech Fund	\$80,000	\$20,000	Cleantech	Technology that rapidly dissolves rubber lining of steel pipes used in the mining industry.
Equipment Fund	\$6,501	\$13,199	Bioscience	Creating new value-added products and providing professional services to businesses.
<b>TOTAL</b>	<b>\$1,350,421</b>	<b>\$3,058,832</b>	<b>TOTAL INVESTMENT</b>	<b>\$4,409,253</b>

## Climate Impact Research Fund

Loïc D'Orangeville

UNB



PROJECT:

THIRST-NB:

A THINNING INVESTIGATION TO REDUCE STRESS IN TREES OF NEW BRUNSWICK

**Forestry is an essential industry in New Brunswick, however, changes in our climate are having ever greater impacts on the health, diversity, and productivity of the province's forests.**

For New Brunswick's Forest industry to thrive in a future impacted by climate change, changes in how our forests are managed will need to be developed and adopted. Loïc D'Orangeville and his team of researchers at the University of New Brunswick are studying approaches to meet this challenge. He was awarded a \$79,820 grant through NBIF's Climate Impact Research Fund to evaluate how thinning (the selective removal of trees) can help reduce the vulnerability of our forests to warmer temperatures and drought conditions. Questions surrounding how much thinning is beneficial, when to do it, and the extent it helps NB forests withstand drought will be addressed in this project.

NB's Climate Impact Fund is made possible through a \$1.5M grant from Opportunities New Brunswick (ONB) and Environment and Local Government. Loïc's project with NBIF is also supported in part by a much larger federal NSERC Alliance Grant known as Silva21, which aims to develop data and tools to improve the resilience of Canadian forests. Loïc is one of twelve principal researchers for this initiative valued at \$5.5M over the next four years. The THIRST-NB project will support the training of a Ph.D. student, two undergraduate summer students, and support knowledge translation with stakeholders and industry.

JDI Woodlands and the Canadian Forest Service are key partners for this project. Their involvement will enable data and recommendations to be implemented in the forest industry both here in NB and across Canada. Although our changing climate poses risks to New Brunswick's forests, research that develops proactive approaches to forest management in partnership with the industry will help secure our forests for the future.



## Early-Stage Commercialization Fund



Marc Surette

UdeM



PROJECT:  
DEVELOPMENT OF  
ANTI-INFLAMMATORY COMPOUNDS

### Chronic inflammatory disease is a continuing problem for modern medicine.

Diseases with a major inflammatory component include rheumatoid arthritis, asthma, and Alzheimer's disease. Although some drugs exist to address chronic inflammation, they have their drawbacks (e.g., are given intravenously, or are only partially effective). Marc Surette and his collaborators at Université de Moncton have developed a series of novel drug-like compounds, and with the support of the Early-Stage Commercialization Fund, they will be able to validate their anti-inflammatory activity in animals. This data will help Marc and his team recruit a larger pharmaceutical company as a partner that can bring this innovation to market as a new drug. It will also allow Marc to further develop the patents for these compounds.

The Early-Stage Commercialization Fund supports researchers working to commercialize their innovation. This work includes securing industry-level testing, creating intellectual property, and identifying customers and partners, but is typically not supported by traditional research grants.

Marc's project will secure data necessary to position his innovation for a potential joint-development project with a pharmaceutical company. If successfully licensed and brought to market, the innovation could both positively impact the health of New Brunswickers suffering from chronic diseases and bring in significant revenue for N.B. research institutions that can be reinvested into finding the next discovery in health care.