# **NBIF**

Q3 Report

**F22** 

# Venture Capital

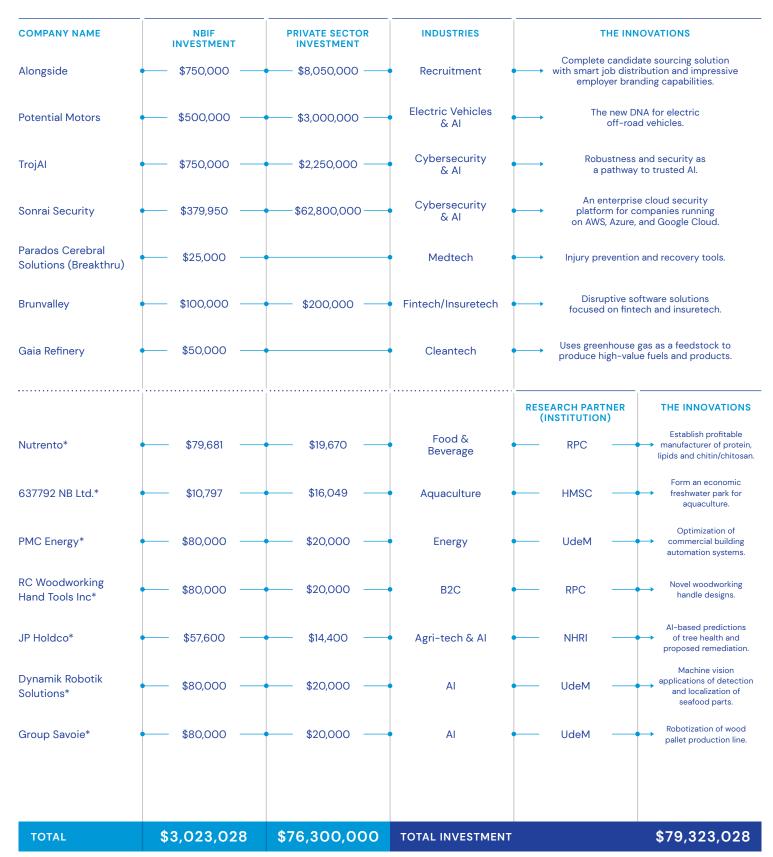
The 3rd quarter saw continued momentum in investments, with more incredible opportunities for venture capital than ever before in New Brunswick.

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**



## Venture Capital Spotlight





James Stewart CEO



Stephen Goodard COO

### **TrojAl**

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

TrojAl 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 TrojAl to \$950,000, putting them in the top 20% of our portfolio for dollars invested.

TrojAl's platform is making waves in the Al 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, TrojAl has identified a rising number of attacks on robotics as Al becomes increasingly prominent within the Internet of Things solutions.

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

### **Venture Capital Spotlight**





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 CO2 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 companies 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

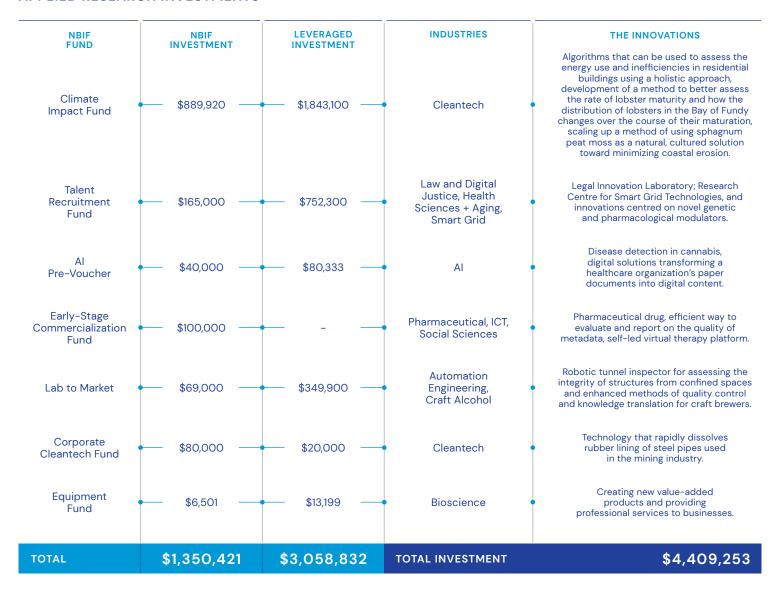
Applied research activity sees a surge in the 3rd quarter of every year.

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, Al 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**



### Climate Impact Research Fund

# Loïc D'Orangeville



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



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.