

Transfert technologique IVADO

ARPI 2025

Mariam Tagmouti

02 juin 2025



HEC MONTRÉAL





IVADO is an interdisciplinary **CONSORTIUM** and cross-sectoral of research, training and knowledge mobilization at the service of sustainable industrial transformation.



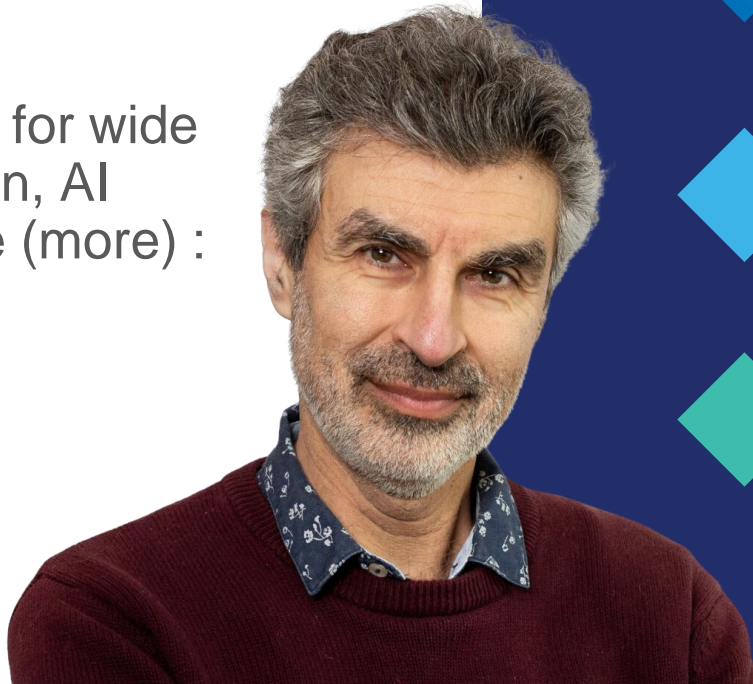
A brief history

- **2016** : IVADO Foundation and **award of a \$94M Canada Excellence Research Fund**
- 2016-2017: First industrial partners and funding
- 2018 : Launch of our postdoctoral fellowships for entrepreneurs
- 2022 : Launch of Scientifique en action and Scientifique en résidence
- **2023** : First call for joint IVADO-RSRI projects (PARTENAR-IA) and second award of a \$124.5 million **Canada First Research Excellence Fund (IAR³)**.
- 2024: Launch of DémultiplIA



R³AI: IVADO's vision for the future

Observation that for wide and safe adoption, AI systems must be (more) :



Robust

Robust models and applications e.g. operational robustness of schedules and embedded systems

Reasoning

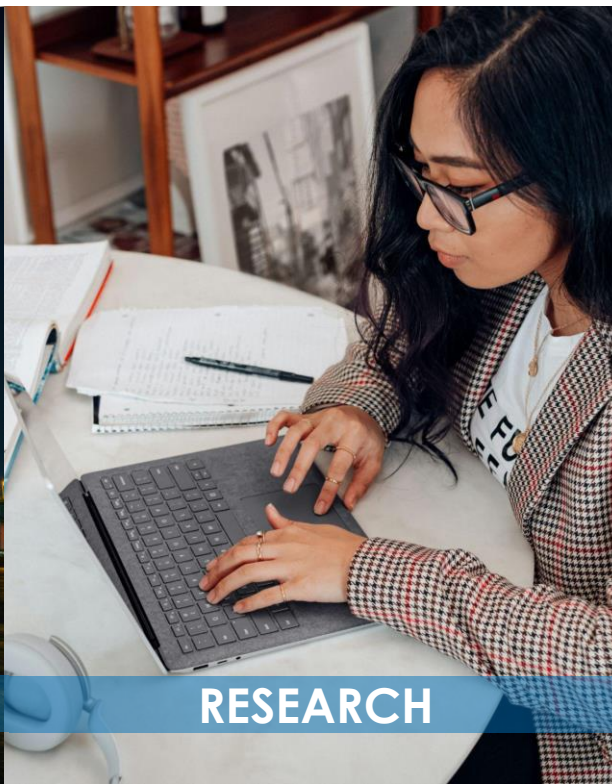
Explainable, causal, modular e.g. causal decision making for predictive maintenance

Responsible

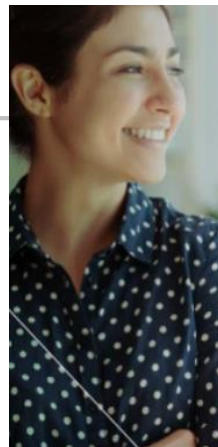
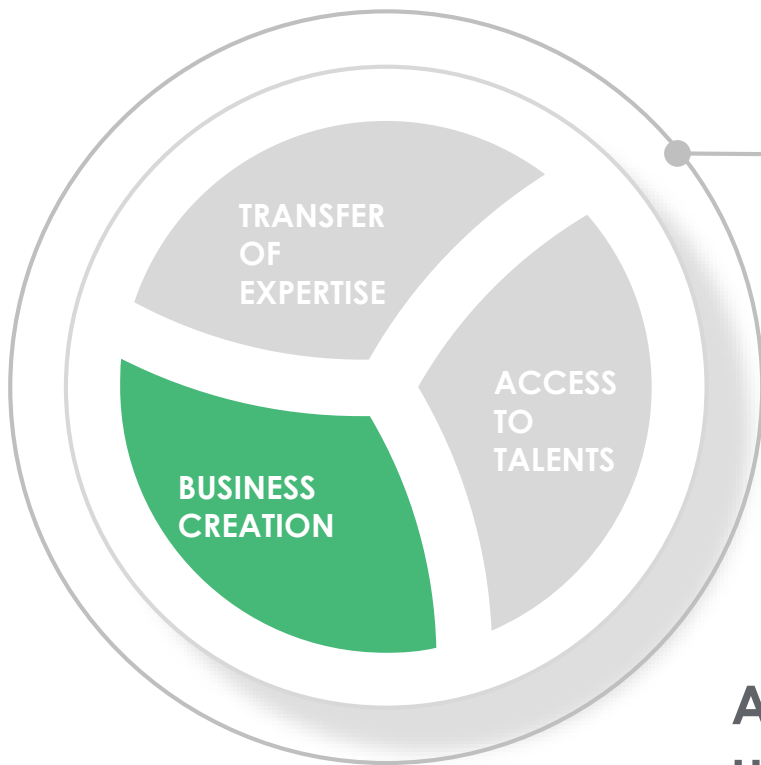
Ethical and inclusive e.g. governance of decision-making systems



Mission: Develop and promote Robust, Reasonable and Responsible AI (R³AI)



Entrepreneur Postdoc Fellowships



Creation of research-based companies

- Salary of \$105,000 over 18 months + up to \$65,000 research budget (Apogée, Arbour Foundation, Squarepoint, and Mitacs)
- Entrepreneurial support from a business accelerator/incubator (NextAI/Centech)
- Any new IP belongs to the company
- Following funding, 2 years of free IVADO membership

Applications open
until June 9



Entrepreneur Postdoc Fellowships 2024

Arthur Ouaknine

Supervised by: David Rolnick

McGill University

Rubisco AI is developing a disruptive technology based on drone imagery combined with artificial intelligence, to monitor plantations hundreds of times faster and more accurately than manual methods. This technology can detect, segment, identify species and estimate the carbon stored by each tree to ensure large-scale monitoring transparency to eliminate fraud and demonstrate the positive of forest restoration.



Annie Desmarais

Supervised by: Alexandre Hudon

University of Montreal

Flow develops a SaaS platform specialized in the field of mental health diagnostic assessment powered by artificial intelligence (AI). The product, the result of doctoral research in neuropsychology, consists of an intelligent supervisor that will help professionals to sort out signs and symptoms in the context of differential diagnoses. It is the first conversational assistant powered by cutting-edge algorithms connected to scientific mental health literature and the patient's electronic medical record, to support the professional in his or her clinical reflection. The project will be developed in the research laboratory of Arnaud Saj, professor of neuropsychology at the Université de Montréal.



Entrepreneur Postdoc Fellowships 2023

Roseline Olory

Supervised by : Samuel Kadoury

Polytechnique Montreal



Project: [BrainInnov](#)

BrainInnov Inc. is developing an intelligent early detection system for lung cancer. Lung cancer is the most frequently diagnosed cancer in both men and women, and one of the deadliest in Canada (5-year survival rate 22%) and worldwide. Around half of all lung cancers are diagnosed too late, considerably reducing the chances of cure, partly due to a strong unmet need for early detection. An early detection system such as ours could increase lung cancer patients' chances of survival by more than 63% over 5 years.

Roberto Felipe Salamanca Girón

Supervised by : Marco Bonizzato

Polytechnique Montreal



Project: PhantasiAI

PhantasiAI develops non-invasive neuroprostheses using multiple AI architectures to deliver "symphonic" electrical stimulation capable of influencing neuroplasticity. In this way, the technology aims to provide optimal neuromodulation, which thanks to unprecedented control of arbitrary biomimetic waves, can dramatically improve learning and rehabilitation in healthy people and neurological patients.





**Prochaine édition de la foire aux stages et emploi IVADO
1er octobre 2025 de 10 h à 15 h à Polytechnique Montréal**





Technology transfer

HEALTH BARBARA DECELLE DANY PLOURDE AGTECH

SUSTAINABLE DEVELOPMENT AND ENERGY

ZOUHEIR MALKI



FABIEN PERINEAU



MATERIALS

SUPPORT FOR TRANSFER AND INNOVATION

WALTHER GUILLAUME



JORDAN GRANET



HEALTH, SPORT AND WELL-BEING

FINANCE, CULTURE AND ARTS

VANESSA ALARIE



ENTREPRENEURSHIP SUPPORT

ANIA RAHNI



AEROSPACE AND AUTOMATION

STÉPHANE CARPENTIER



ENTREPRENEURSHIP

GABRIELLE LANGLOIS



TELECOMS AND SUSTAINABLE DEVELOPMENT

ROMY MARTINEZ



MOBILITY AND ROAD SAFETY

JEAN-FRANÇOIS BRUNEAU



DATA VALUE CREATION

NANCY LARAMÉE



SUPPLY CHAINS AND TRANSPORT LOGISTICS

MARIAM TAGMOUTI



ENTREPRENEURSHIP

MÉLISSA AUTHIER



Tech Transfer Entrepreneurship Team



5 institutional partners

Université 
de Montréal

HEC MONTRÉAL



More than 20 university partners and members



CIM
CENTRE FOR
INTELLIGENT
MACHINES



TOUSSEIGS FUTURE RESEARCH CENTRE



Institut
Courtois



Institut
intelligence
et données



Université 
de Montréal



ENGINEERING AI APPLICATIONS



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UNIQUE
CENTRE



Université 
de Montréal

... and many others from all of Quebec's major universities



More than 150 innovative partners

Major partners and public and parapublic organizations

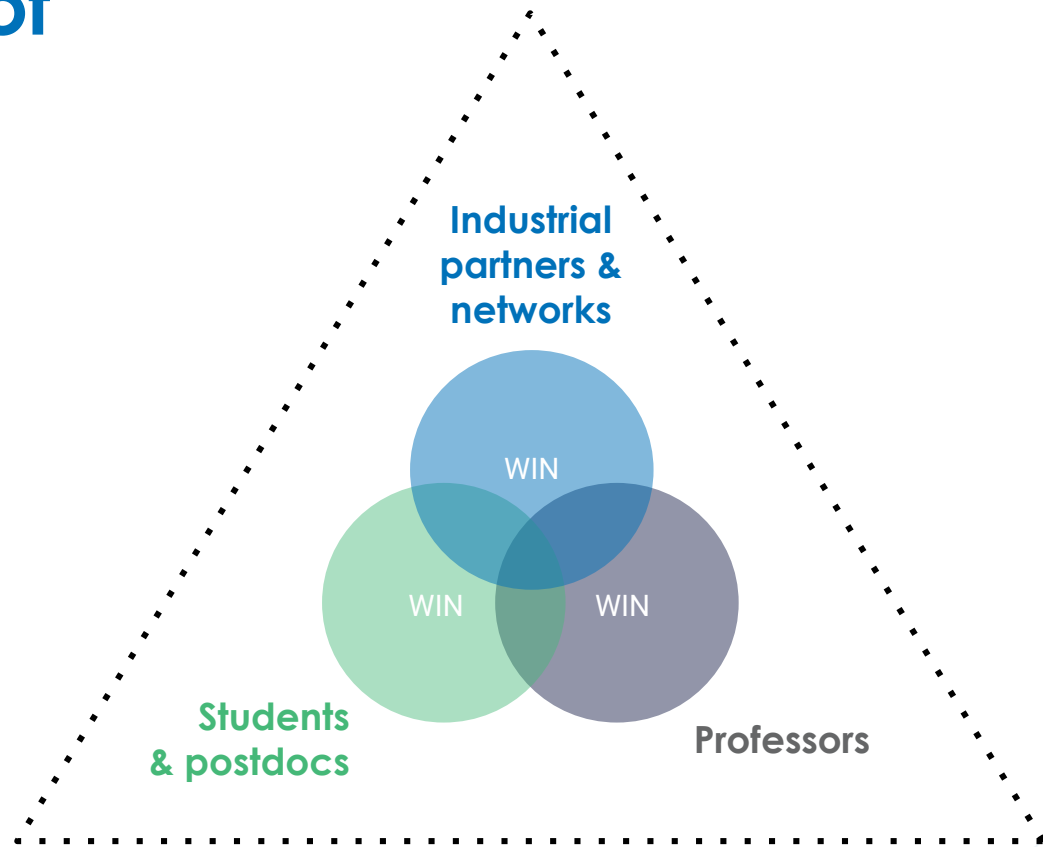
NPOs, SMEs and startups

Sector clusters, incubators and funding organizations



As of March 12, 2025

Our DNA of Transfer



Collaborative research

Project definition

01

02

Find researchers and students

Eliminate challenges

04

03

Derisking the project with research funding



Collaborative research

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Derisking the project with research funding





Problem

Characterization research community in data valorization through analysis of collaborations

Our resources

- A search tool for researchers - filter by name, affiliation or skills
 - A list of IVADO researchers who are under our radar
 - Our project database
- Our collective intelligence

Jean-François Lalonde

Laval University - Department of Electrical and Computer Engineering

Prof. Agrégé

jflalonde@gel.ulaval.ca

Skills:

augmented reality computer vision deep learning artificial intelligence high dynamic range computer science object detection rendering synthetic data segmentation robustness convolutional neural network
artificial neural network computer graphics images single image virtual image reflection mapping ground truth sky compositing image processing panorama pattern recognition low dynamic range mathematics
computer graphics computational photography digital vision machine learning with a focus is 2d and 3d computer vision and graphics



Last updated: December 5, 2020, 08:12 PM EST



The Partnerships team and young researchers

Almost every week, our team welcomes new teachers who wish to collaborate with the industry and organizations in our network.

Many fruitful links have been forged thanks to these meetings



Our needs

- Find new researchers in a specific field
- Find new research interests through conference and journal articles.
- Find researchers with whom our researchers collaborate and who are in disciplines little-known by our team.



Few examples

- One of our professors collaborates with a CHUM researcher to develop an image-based disease detection solution.
- One of our NLP researchers collaborates with a linguistics professor to enrich the design, quality and ethics of the models developed.
- One of our AI researchers is collaborating with plant biodiversity researchers to develop tools for discovering, quantifying and identifying areas of threatened biodiversity.



Main branches of AI



10 research regroupements

An original, interdisciplinary research alliances that will be able to respond to the complex challenges of the R³AI program.



AI -
neuroscience



Machine
learning



NLP



Implementation Science
and Responsible
Governance



Contribution of EDI
and Indigenous
Peoples



Molecules



Environment



Healthcare
systems



Supply chains



AI safety and
alignment



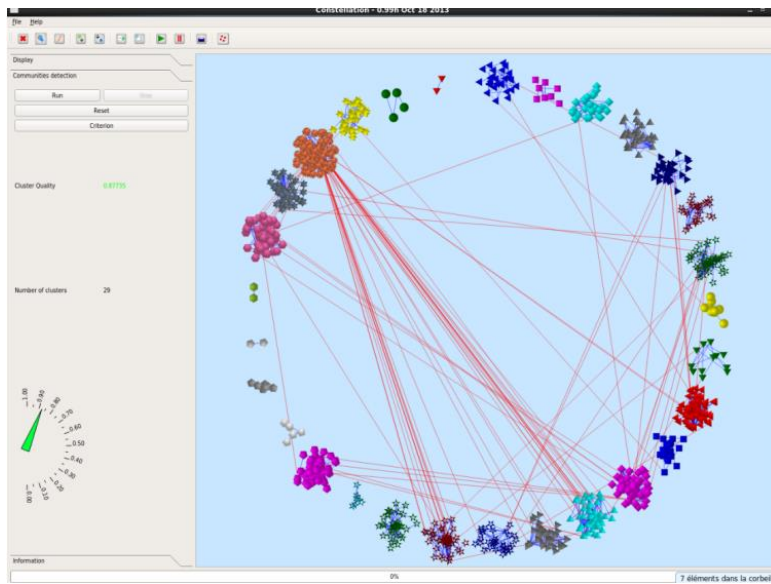
Available data

- List of researchers in our network: name, affiliation, research interests...
- List of IVADO researchers linked to the 10 regroupements: name, affiliation, research interests...
- List of scientific conferences and journals publications - Public data
- AI domains for better classification



Literature review

Z. Atoui, G. Caporossi and S. Perron studied the structure of collaboration and its evolution based on the GERAD publications from 1980 to 2009. They constructed a graph where each node represent a researcher or a publication. A link exists if the researcher has contributed to the publication. Example of detected regroupements using 2005 - 2009 data :





Achievements and success stories

2 “new bridges”
per week

built since 2017

772

AI projects involving

333

organizations with

378 professors and

having a total value of

> 117M\$



Robot Axel, un robot pour briser l'isolement des aînés

Alain Desbiens, Fondation Sunny

Jian-Yun Nie, RALI - Université de Montréal

François Michaud, Université de Sherbrooke

Mélanie Levasseur, Université de Sherbrooke



UNIVERSITÉ DE
SHERBROOKE





brings together actors from academia and industry in Quebec whose collaboration advances technologies related to natural language processing.

beneva



CAE



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lexum



keatext



UQAR

12 faculty members from 7 universities - Total value of \$3.2M
27 meetups organized since sept 2019

References and links

<https://www.geeksforgeeks.org/top-10-branches-of-artificial-intelligence/>

<https://www.gerad.ca/fr/papers/G-2013-35.pdf>

lenouvelliste.ca/actualites/actualites-locales/2025/03/16/axel-le-robot-ami-des-aines-3MP6DILN4RGPFDMMQYHQIDMNH7E

<https://ivado.ca/abonnement-a-notre-infolettre/>



QUESTIONS ?

