

# Ysaël Desage



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Mont Saint-Hilaire  
QC, Canada



/in/YsaelDesage/

## Languages

French



(Native)

English



(Fluent)

Spanish



(Fluent)

## Numerical Assets

- Python
- TensorFlow
- LaTeX
- Julia
- Docker
- Git
- Bash
- ...

## Countries of Experience

- United States
- Mexico
- France
- Rwanda
- Mali
- India
- Vietnam
- Mayotte
- Australia
- Costa Rica

## Hobbies & Interests



Dance



Various  
Sports



Lifesaving



Nature &  
Outdoor



Martial  
Arts



Movies &  
Cinema



Electronics



Sailing

## Profile

Resourceful **application-oriented** developer, with a significant research background and various **industrial experiences**. Highly **adaptable**, my focus revolves around **problem-solving** through the deployment of **valuable solutions**, ranging from **fast off-the-shelf based** deliverables, to **custom cutting-edge** approaches and infrastructures.

My background in **physics** provides me with a solid mathematical understanding and analytical intuition, blending holistically with **artificial intelligence**, **operations research**, **control** and **modeling** expertise to deliver **innovative**, **performing** and **rigorous** results.

## Diplomas & Qualifications

### Academia

**PhD Electrical & Computer Engineering** (in progress) 2023

McGill University

**M. Sc. Computer Science – Operations Research** 2020

Université de Montréal & McGill University

**B. Sc. Physics – Astrophysics** 2018

Université de Montréal

**TOEFL** 2014

### Lifesaving

**First Aid +** 2013


National Lifeguard Instructor (Pool, Waterfront & Surf) 2018


Australian Bronze Medallion 2016


## Publications

 *Autonomous Control in Smart Buildings: a Deep Reinforcement Learning Approach* – **Cahiers du GERAD** 2020

## Conference Activities

 **Invited conference speaker**, IVADO – *Modern deployment success: blending artificial intelligence and operations research.* 2021

 **Sponsored panelist** (BrainBox AI inc.), Unissu – *AI-driven HVAC optimization: the next disruptive innovation in real estate.* 2021

 **Invited conference speaker**, IGEE – *Introduction to Machine Learning for engineers.* 2020

 **Conference speaker**, journées de l'optimisation (JOPT) 2019

## Involvement and Volunteering

♥ **Cargo Plane technical society** – Polytechnique Montréal 2017  
*Design et conception of cargo planes for inter-universities competitions*

♥ **Multidisciplinary projects Vamos Youth** – Costa Rica 2018  
*Lifesaving and astronomy teaching workshops, community projects*

♥ **Lifesaving championships** – Lifesaving Society 2018  
*Athlete, member of the organizing committee, safety manager*

## Scholarships and Fellowships

\$ **Industrial Fellowship (65 000\$)** – Mitacs Accelerate 2019-2020

## Research Groups and Associations



CORS-SCRO



Canadian Association  
of Physicists  
Association canadienne  
des physiciens et physiciennes



CIRRELT



GROUP FOR RESEARCH  
IN DECISION ANALYSIS

# Professional Experiences

## Brainbox AI

Montreal (QC)

September 2019 – Now

BRAINBOX AI

### Consultant

*Operational infrastructure development and deployment.*

*Automation, Artificial Intelligence, physics-based modeling, control and operations research.*

### Optimal control software development

*Master's project, Mitacs fellowship collaboration and scientific paper publication: Artificial Intelligence based prediction and control software development.*

## Sigma Energy Storage

Montreal (QC)

May 2017 – May 2019



### Co-Research

*Mitacs fellowship collaboration: Applied research and development in the energy sector: electrical demand forecasting, control, energy storage, energy markets and arbitraging.*

### Engineering internship

*Heat exchanger and thermal storage feasibility study and modeling. Acoustic modeling.*

## Awn Nanotech

Montreal (QC)

January 2018 – May 2018



### Research student

*Atmospheric water extraction: theoretical model development for water nucleation on a functionalized carbon nanotubes membrane.*

## Succès Scolaire

Montreal Region (QC)

January 2017 – May 2017



### Specialized tutoring

*Individual academic tutoring for high school to first University cycle material. Included students with behavioral problems and learning difficulties.*

## SN Hawaii

Oahu (HI)

2018, 2019, 2020



### Lifeguard instructor

*Ocean rescue instructing, enriched program development, group management.*

## Corolla Beach Rescue

Corolla (NC)

Summer 2019



### Ocean lifeguard

*Ocean rescue and training.*

References available upon request