

# Romain Martinez

DATA SCIENTIST TECHNICAL LEAD · WEB DEVELOPER

Montreal, Canada

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## Experiences

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### CAE Inc.

Montréal, Canada

DATA SCIENTIST TECHNICAL LEAD

October 2021 - Present

As a Data Scientist Technical Lead at CAE, I hold a dynamic position within the AI Strategy team. My responsibilities span across leading and managing a team in the Rise project, where I wore the hat of a Product Owner, steering the development of an innovative data-driven pilot training system. Simultaneously, my expertise as a data scientist has been instrumental in the Predictive Maintenance project, where I engage in sophisticated feature engineering, robust model building, and the development of intuitive dashboards. Alongside these pivotal roles, I embrace the responsibilities of mentorship, advocating code best practices, and lending my insights to refine code architecture and data processing strategies. With a steadfast commitment to innovation and the pursuit of excellence, my role is at the intersection of leadership and advanced technical proficiency.

### Montreal Canadiens

Montréal, Canada

DATA SCIENTIST

September 2018 - Present

Development of web applications and analytics solutions used across the organization to drive immediate and ongoing value:

**Hockey operations** : analysis of game statistics in real time and production of pre- and post-game reports.

**Sports science** : monitoring of physiological variables and statistical analysis of the training load.

**Scouting** : detection, coordination and statistical analysis of professional and junior players.

### Institut IVADO

Montréal, Canada

DATA SCIENTIST (500 HOURS)

September 2018 - April 2019

Statistical analysis and redaction of two scientific reports on training load monitoring in professional hockey

### Université de Montréal

Montréal, Canada

TEACHING ASSISTANT (270 HOURS)

September 2016 - April 2020

Creation, preparation and teaching of university courses

**KIN6839** : motion kinetics and kinematics (2018 and 2020)

**KIN2024** : joint biomechanics and motion analysis (2016, 2017 and 2018)

### Confidential

Montréal, Canada

BIOMECHANICAL CONSULTANT (25 HOURS)

June 2017 - July 2017

Musculoskeletal modeling, statistical analysis and scientific report used in trial deliberation

## Education

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### Université de Montréal

Montréal, Canada

PHD IN KINESIOLOGY

September 2016 - December 2020

Development of biomechanical indicators in manual handling tasks

### Aix-Marseille Université

Marseille, France

MSC IN HUMAN MOVEMENT ENGINEERING AND ERGONOMICS

September 2014 - September 2016

First year abroad at the University of Ottawa

### Aix-Marseille Université

Marseille, France

BSC IN KINESIOLOGY

September 2011 - September 2014

Specialization in Sport Ergonomics and Movement Performance

## Skills

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**Data science** Python, Numpy, Pandas, PyMC3, Scikit-learn, PyTorch

**DevOps** Git, GitHub, Linux, Azure, AWS, Docker, Bash

**Back-end** MongoDB, SQL, FastAPI, Flask, Rest

**Front-end** JavaScript (Vue.js), CSS (Tailwind CSS), HTML5

**Languages** French, English, Spanish (comprehension)

# Distinction

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## HONORS

2016 - 2020	<b>Rector's honor list</b> , PhD in Kinesiology	Montréal, Canada
2016 - 2020	<b>Honor roll</b> , PhD in Kinesiology	Montréal, Canada
2014 - 2016	<b>Honor roll</b> , MSc in Human Movement Engineering and Ergonomics	Marseille, France
2011 - 2014	<b>Honor roll</b> , BSc in Kinesiology	Marseille, France

## AWARDS

2016 - 2020	<b>Bourse sur fond de recherche</b> , Laboratoire de Simulation et de Modélisation du Mouvement	Montréal, Canada
March 2018	<b>Best scientific presentation</b> , Journée de la recherche de l'Université de Montréal	Montréal, Canada
2014 - 2016	<b>Valedictorian</b> , MSc in Human Movement Engineering and Ergonomics	Marseille, France
2011 - 2014	<b>Valedictorian</b> , BSc in Kinesiology	Marseille, France

# Publications

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## **Predicting eggbeater kick performances from hip joint function testing in artistic swimming**

MARTINEZ R., ASSILA N., MONGA-DUBREUIL E., DESMYTTERE G., BEGON M.

2022

SportRxiv

## **Développement d'indicateurs biomécaniques en manutention et leur application dans l'étude des différences entre les sexes lors de levers de charges en hauteur**

MARTINEZ R.

2021

Thèse de Doctorat de l'Université de Montréal

## **Pyomeca: an open-source framework for biomechanical analysis**

MARTINEZ R., MICHAUD B., BEGON M.

2020

Journal of Open-Source Software

## **Sex differences in upper limb musculoskeletal biomechanics during a lifting task**

MARTINEZ R., ASSILA N., GOUBAULT E., BEGON M.

2020

Applied Ergonomics

## **Sex differences in upper Limb 3D joint contributions during a lifting task**

MARTINEZ R., BOUFFARD J., MICHAUD B., PLAMONDON A., CÔTÉ J. N., BEGON M.

2019

Ergonomics

## **L'effet du sexe sur l'activation des muscles de l'épaule lors d'une tâche de manutention**

MARTINEZ R.

2016

Thèse de Master d'Aix-Marseille Université

## **Introduction à l'apprentissage automatique en biomécanique**

MARTINEZ R.

2018

Examen de synthèse de l'Université de Montréal

## **Analyse critique de la modélisation musculo-squelettique en manutention**

MARTINEZ R.

2018

Examen de synthèse de l'Université de Montréal

## **Sex differences in glenohumeral muscle activation and coactivation during a box lifting task**

BOUFFARD J., MARTINEZ R. <sup>CO-FIRST AUTHOR</sup>, PLAMONDON A., CÔTÉ J. N., BEGON M.

2019









Ergonomics

## **Effet du sexe et de l'expertise sur les contraintes à l'épaule en manutention**

GOUBAULT E., MARTINEZ R. <sup>CO-FIRST AUTHOR</sup>, ASSILA N., DOWLING-MEDLEY J., MONGA-DUBREUIL E., SCHERRER S.A., PLAMONDON A., BEGON M.






2020










IRSST - rapport prévention en SST et environnement de travail

-  **Shoulder electromyography-based indicators to assess manifestation of muscle fatigue during laboratory-simulated manual handling task** 2021  
GOUBAULT E., MARTINEZ R., BOUFFARD J., DOWLING-MEDLEY J., BEGON M., DAL MASO F.  
Ergonomics
-  **Effect of expertise on shoulder and upper limb kinematics, electromyography and estimated muscle forces during a lifting task** 2020  
GOUBAULT E., MARTINEZ R., ASSILA N., MONGA-DUBREUIL E., DOWLING-MEDLEY J., DAL MASO F., BEGON M.  
Human Factors
-  **In-Season session training Load relative to match load in professional ice hockey** 2020  
ALLARD P., MARTINEZ R., DEGUIRE S., TREMBLAY J.  
The Journal of Strength and Conditioning Research
-  **Shoulder muscle activation strategies differ when lifting or lowering a load** 2020  
TURPIN N., MARTINEZ R., BEGON M.  
European Journal of Applied Physiology
-  **Shoulder muscles coordination during eccentric actions** 2020  
TURPIN N., MARTINEZ R., BEGON M.  
Computer Methods in Biomechanics and Biomedical Engineering
-  **EMG-Assisted Algorithm to Account for Shoulder Muscles Co-Contraction in Overhead Manual Handling** 2020  
ASSILA N., PIZZOLATO C., MARTINEZ R., LLOYD D., BEGON M.  
Applied Sciences
-  **Chapter 20 - Motion analysis and modeling of the shoulder: challenges and potential applications** 2019  
BLACHE Y., MARTINEZ R., DUMAS R., BEGON M., HAGEMEISTER N., DUPREY S.  
DHM and Posturography
-  **Développer des valeurs normatives des rations et asymétries de force maximale isométrique des muscles de la hanche pour des athlètes élités** 2019  
MARION P., AIZEN K., DESMYTTERE G., MONGA-DUBREUIL E., MARTINEZ R., ASSILA N., BEGON M.  
Institut National du Sport

## Talks

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-  **Développement d'indicateurs biomécaniques en manutention et leur application dans l'étude des différences entre les sexes lors de levers de charges en hauteur** *Montréal, Canada* 2020  
UNIVERSITÉ DE MONTRÉAL  
Soutenance de thèse de Doctorat
-  **Pyomeca: une librairie Python d'analyse biomécanique** *Montréal, Canada* 2020  
INSTITUT TRANSMEDTECH  
Café scientifique TransMedTech
-  **Inférence statistiques: une application en biomécanique** *Montréal, Canada* 2020  
UNIVERSITÉ DE MONTRÉAL  
KIN6839: cinétique et cinématique du mouvement
-  **Modélisation musculo-squelettiques: concepts et intuitions** *Montréal, Canada* 2020  
UNIVERSITÉ DE MONTRÉAL  
KIN6839: cinétique et cinématique du mouvement
-  **Développement d'indicateurs de risque de troubles musculo-squelettiques à l'épaule** *Montréal, Canada* 2019  
ÉCOLE DE TECHNOLOGIE SUPÉRIEURE  
Inauguration du Laboratoire International Associé

-  **Estimation du risque de blessure en hockey professionnel: une approche bayésienne innovante** *Montréal, Canada*  
UNIVERSITÉ DE MONTRÉAL 2019  
Journée de la recherche
-  **Effective computation in biomechanics** *Montréal, Canada*  
UNIVERSITÉ DE MONTRÉAL 2019  
KIN6839: cinétique et cinématique du mouvement
-  **Machine learning reduces the amount of necessary maximum voluntary isometric contractions tests of the shoulder muscles** *Dublin, Ireland*  
THE DUBLIN CONFERENCE CENTRE 2018  
World Congress of Biomechanics
-  **Sex-specific scapulo-humeral rhythm during a lifting task** *Dublin, Ireland*  
THE DUBLIN CONFERENCE CENTRE 2018  
World Congress of Biomechanics
-  **Normalisation de signaux électromyographiques à l'aide de l'apprentissage automatique** *Montréal, Canada*  
UNIVERSITÉ DE MONTRÉAL 2018  
Journée de la recherche
-  **Gender differences in upper limb 3D joints contributions during a lifting task** *Boulder, USA*  
UNIVERSITY OF COLORADO 2017  
American Society of Biomechanics
-  **L'effet du sexe sur la contribution des articulations du membre supérieur lors d'une tâche de manutention** *Sherbrooke, Canada*  
DÉPARTEMENT DE KINÉSIOLOGIE, UNIVERSITÉ DE SHERBROOKE 2017  
Association Québécoise des Sciences de l'Activité Physique
-  **L'effet du sexe sur la contribution des articulations du membre supérieur lors d'une tâche de manutention** *Montréal, Canada*  
UNIVERSITÉ DE MONTRÉAL 2017  
Journée de la recherche
-  **L'effet du sexe sur l'activation des muscles de l'épaule lors d'une tâche de manutention** *Montréal, Canada*  
CENTRE DE RECHERCHE DU CHU SAINTE-JUSTINE 2016  
Symposium de l'Axe Maladies Musculosquelettiques et Réadaptation