

# ALEXANDRE HERBAY, Ph.D.

Scientist at the convergence between data science, computer science and cognitive neuroscience

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[aherbay](https://github.com/aherbay)

## PROFESSIONAL EXPERIENCE

### R package developer

2020 -

- Created and developed the new R package *ERPscope* to easily create high quality and highly customizable analyses and visualizations of ERPs (EEG-based neuroimaging data). The code and the documentation are available at [www.erpscope.org](http://www.erpscope.org)

### Mobile application developer

2016 - 2023

[Child Phonology Lab & DIALSpeech](#)

- Designed, fully developed, maintained and managed on the AppStore Connect three iPad applications, based on *Ionic*, *Angular*, and HTML-CSS-Javascript technologies
  - ➔ *Phophlo*, *SAILS* and *SAILS+* available on iOS for iPad (12K users)
- Developed the [www.dialspeech.info](http://www.dialspeech.info) website to present the applications and user guides
- Designed the logos and visual identity for the apps and the website
- Created user interfaces compatible with clinical and school environment constraints
- Supervised a student for the development of a *Flutter*-based mobile application

### PhD Researcher

2014 - 2022

[McGill University](#)

- Defined, implemented, and executed experimental protocols that allowed to demonstrate inter-individual variability in the brain processing of word and sentence meaning in real time; exploratory analyses, statistical analyses, interpretation of results, writing, editing and submission of scientific articles
- Managed scientific projects over several years and collaborated with researchers of different specialties leading to 5 articles published in scientific journals and 19 conference presentations on brain processing of language, language development in children and immunology (complete list [available on my website](#))

### Research projects supervisor

2014 - 2021

[Université de Montréal & McGill University](#)

- Trained and supervised 22 undergraduate students and one graduate student in research projects in neuroscience, speech-language pathology and developmental psychology
- Supervised the definition of their research project, compilation, cleaning and analysis of data, statistical models, preparation of scientific abstracts and posters
- Trained them in conference presentations and supervised the writing of their final report in the form of a scientific article
- Trained them in the use of online experimentation platforms, recruitment & management of participants in scientific experiments (online and electroencephalography)

## EDUCATION

### Ph.D. in Communication Sciences & Disorders

[McGill University, Canada](#)

2014 - 2022

*Thesis in neurolinguistics*  
[tinyurl.com/herbay-thesis](https://tinyurl.com/herbay-thesis)

### B.Sc. in Linguistics & Psychology

[Université de Montréal, Canada](#)

2010 - 2014

### B.Sc. in Fundamental Computer Science

[Université Paul Sabatier, France](#)

2007 - 2011

## SKILLS

### Data science

R: *tidyverse*, *shiny*, *lme4*, *glm*, *brms*

Python: *Numpy*, *Pandas*, *Matplotlib*, *Scikit-Learn*, *Keras*

Matlab - Excel - C - Prolog

### Software development

HTML - CSS - JavaScript

Angular - Ionic - Flutter - Xcode

Unix, git & Github

### Scientific research

EEG experimentation & analyses

Online experiments ([Gorilla.sc](#))

Scientific communication

### Professional

Excellent communication skills

Team player

Developed autonomy & self-training

### Languages

French (native language)

English (professional)

## I PROFESSIONAL EXPERIENCE (CONT.)

**Lecturer** 2018

[School of Communication Sciences & Disorders - McGill University](#)

- Taught the 'Research Methods and Measurement' seminar of the Master of Speech-Language Pathology program
- Created new course materials, organized practical activities and evaluations over 13 weeks for 35 Master students
- Introduced R programming and the use of statistics in clinical research

**MITACS Intern** 2015

[Computer Research Institute of Montreal \(CRIM\)](#)

- Completely developed an online application running on tablets and computers, and based on an online database (*Angular, CouchDB, PouchDB & Express JS*)

**Research Assistant** 2013-2014

[Laboratoire d'Acquisition et Traitement du Langage - Université de Montréal et iLanguage Lab](#)

- HTML programming for an online application project based on the MontageJS framework.
- Mentored a speech-language pathology student

**Teaching Assistant** 2011- 2014

[Linguistics & Translation Department - Université de Montréal](#)

- Organized weekly tutorials, prepared methodological worksheets, exercises, exams & graded exams for 5 linguistics and translation courses: Computer Tools for Translators (2011 to 2012), Language and Technology (2011), Notions of Syntax (2012 to 2014), Syntax (2013) and Lexicology, Semantics & Morphology (2013)

## I COMMUNITY SERVICE

**Scientific Communicator** 2017-2019

[Brain Reach & 24 hours of Science](#)

- Organization of monthly presentations and interactive activities to introduce neuroscience to elementary and high school students.

**Organizer of scientific journal clubs** 2017-2018

[McGill University & Center for Research on Brain, Music and Language](#)

- Created the program, selected the articles to be read and animated the discussion of sessions for the groups '[Artificial Intelligence & Cognitive Sciences](#)' and '[Syntex: the experimental syntax](#)'.

**Student Representative** 2016-2021

- Member of the scientific activity committee of the *Centre for Research on Brain, Music and Language* (2016-2021)
- Departmental representative to the *Post Graduate Student Society of McGill University* (2017-2019)

**AEGEE-Toulouse Vice-President** 2008-2010

[Association des Etats Généraux de l'Europe \(European Students' Forum\)](#)

- In charge of welcoming foreign students at Paul Sabatier University
- Offered administrative assistance to newcomers and organized social and cultural events

## I AWARDS

**Doctoral Research Fellowship**

- Ranked 1st

[Fond de Recherche du Québec  
Société et culture](#)

2018-2022

**Oral Presentation Award**

[VocUM International symposium](#)

2019

**Editor's Award**

- best published article in 2017

[Canadian Journal of Speech-Language  
Pathology and Audiology](#)

2018

**Graduate Student Excellence Award**

[Center for Research on Brain, Music and  
Language](#)

2018

**Best Scientific Poster**

[Symposium Plasticité, musique et  
langage - 85ème congrès de l'ACFAS](#)

2017

**Lucie Besner Fellowship for the  
Study of Human Communication  
Neuroscience**

[School of Communication Sciences &  
Disorders - McGill University](#)

2017

**Bourse Accélération**

[MITACS](#)

2015-2016

**Departmental Nomination for the  
Governor General's Award**

[Linguistics & Translation Department,  
Université de Montréal](#)

2014

**Dean's Award Recipient - twice**

[Faculty of Arts and Sciences,  
Université de Montréal](#)

2011 et 2012

## I HOBBIES

Climbing / Travel / Cooking