

FRANCIS CARTER

Neuroscientist,
Machine Learner,
and Wrestler

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Languages

English ● ● ● ● ●
French (native) ● ● ● ● ●

Programming

Scientific
Python ● ● ● ● ●
R ● ● ● ● ●
MatLab ● ● ● ● ●

Backend
Java ● ● ● ● ●
Python ● ● ● ● ●

Frontend
HTML, CSS ● ● ● ● ●
Javascript ● ● ● ● ●

Other relevant experience:
PyTorch, TensorFlow, Scikit-Learn,
Keras, Multiprocessing in Python.
Linux, Mac, Windows. Simple Bash
programming, git and ssh protocol.

Certifications

- 2018, Workplace Safety
WHIMIS
- 2018, Animal Care Training
for research
- 2017, CPR/AED Training
YMCA

Work Experience

- 2019 – present **Research Assistant** Dr. Christopher Steele, Concordia University
Development of analytical techniques for human quantitative MRI.
- 2018 – present **Research Assistant** Dr. Peter Shizgal, Concordia University
Computational modelling of reinforcement learning mechanisms. Optogenetic activation of neurons mediating reinforcement in the rat.
- 2019 – 2020 **Supervisor, SL** Dept. of Biochemistry, Concordia University
Supervising teaching assistants and developing the Strategic Learning (SL) program to provide wide access to academic aid for students.
- 2018 – 2019 **Teaching Assistant** Dept. of Biochemistry, Concordia University
Group tutoring for strategic learning.
- 2016 – 2017 **Medical Coordinator** Equinoxe Virtual Clinic
Patient care and communications with laboratories, hospitals, pharmacies, and medical specialists.
- 2017 **Research Assistant** Dr. Andrew Chapman, Concordia University
Neurotransmitter effects on electrophysiological recordings in rat brain slices in vitro. reinforcement in the rat.
- 2016 **Research Technician** Derme & Co.
Quality control of skin-care products.

Education

- 2020 – present **M.Sc. in Computer Science, Machine Learning** MILA, Université de Montréal
Professional Master's program through Montreal Institute for Learning Algorithms
- 2016 – 2020 **B.Sc. in Behavioural Neuroscience** Concordia University
Mappin Medal: highest standing B.Sc. recipient
J.W. Bridges Medal: highest standing within Dept. of Psychology
- Bachelor Theses** Center for Studies in Behavioral Neuroscience
 - Optogenetics and Dopamine's role in Reinforcement Learning
 - Assessing Quantitative MRI through Multimodal Comparisons

Publications & Selected Abstracts

- Currently finalizing two articles.
- 2020 **Assessing quantitative MRI techniques using multimodal comparisons.**
Carter et Al.
Organization for Human Brain Mapping
 - 2020 **Improving the speed of surface registrations.**
Carter et Al.
Quebec Bio-Imaging Network
 - 2019 **Questioning the role of phasic dopamine signaling in reinforcement learning.**
Carter et Al.
Society for Neuroscience Conference
 - 2019 **Serotonin 5-HT1A receptor-mediated reduction of excitatory synaptic transmission in layers II/III of the parasubiculum.**
Carter, F., and Chapman, C.A.
Neuroscience

Notable Academic Awards

- 2019 Governor General All-Canadian Rideau Hall, Government of Canada
- 2020 Alexander Graham Bell Doctoral Scholarship (105,000\$) NSERC
I declined this and FRQNT's awards
- 2017 – 2019 3x NSERC Undergraduate Student Research Award NSERC
- 2018 – 2019 2x President's Award, Academic Award Concordia University
- 2018 – 2019 2x Molson Foundation Academic Excellence FAEQ

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About Me

I am always searching for a way to learn more and expand my horizons. Group work and human interactions bring a dynamic that I enjoy and want to pursue. I am nevertheless characterized by my individual passions and commitment to hard work, which I learned in part throughout my athletic career.

Interests

- Reading
- Running / Hiking
- Cooking

Athletic Accomplishments

2016 – 2019	Member of Concordia wrestling team Previously an athlete at the cegep, high school, and city levels. Through my dedication, I have competed nationally and internationally in Olympic freestyle wrestling, and developed the discipline and ability to perform under pressure.	
2018 – 2019	2x Canadian University Champion (68 kg)	USPORTS Canada
2018 – 2019	2x Individual Sports Excellence Bursary	FAEQ
2018	National Team Member - University World Championships	Goiana, Brazil
2018	Top 8 University athletes in Canada	USPORTS
2018	Male Athlete of the Year	Concordia University

Volunteer Work

2017 – 2019	Intensive Care Unit Volunteer Guiding and supporting family members of patients, and shadowing medical procedures within the ICU Bridge Program.	Montreal General Hospital
2018	Tutor for students with disabilities Learned to adapt communication and material for people with difficulties. Taught the importance of compassion. Learned to adapt communication and material for people with difficulties.	Concordia Access Center
2013 – 2016	High School wrestling coach Learned to communicate skills and advice.	Vincent Massey Collegiate
2015	Mentorship program for new athletes Helped new students balance education and athletics.	Vanier College