

FRANCIS CARTER

Neuroscientist,
Machine Learner,
and Wrestler

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Get to know me

LinkedIn

carterfrancis

Languages

English ● ● ● ● ●

French (native) ● ● ● ● ●

Programming

Scientific

Python ● ● ● ● ●

R ● ● ● ● ●

MatLab ● ● ● ● ●

Backend

Java ● ● ● ● ●

Python (Django) ● ● ● ● ●

Frontend

HTML, CSS ● ● ● ● ●

Javascript ● ● ● ● ●

Other relevant experience:

PyTorch, TensorFlow, Scikit-Learn,
Keras, Multiprocessing.

Linux, Bash programming, git, ssh
protocol, Mac, Windows.

Google cloud computing, SQL.

Certifications

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

Work Experience

2021 – present	Machine Learning Intern	Hydro-Québec
	Development of machine learning models for solar radiation forecasting based on satellite data.	
2019 – present	Research Assistant	Dr. Christopher Steele, Concordia University
	Development of analytical techniques for human quantitative MRI.	
2018 – 2020	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.

2021	The trade-off between pulse duration and power in optical excitation of midbrain dopamine neurons approximates Bloch's law <i>Pallikaras et Al.</i> bioRxiv
2020	Assessing quantitative MRI techniques using multimodal comparisons. <i>Carter et Al.</i> Organization for Human Brain Mapping
2020	Improving the speed of surface registrations. <i>Carter et Al.</i> Quebec Bio-Imaging Network
2019	Questioning the role of phasic dopamine signaling in reinforcement learning. <i>Carter et Al.</i> Society for Neuroscience Conference
2019	Serotonin 5-HT1A receptor-mediated reduction of excitatory synaptic transmission in layers II/III of the parasubiculum. <i>Carter, F., and Chapman, C.A.</i> Neuroscience

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About Me

I am continually searching for a way to learn more and expand my horizons. Always seeking to connect with those surrounding me, but I have a strong sense of autonomy, which I learned in part throughout my athletic career.

Interests

- Reading
- Running / Hiking
- Cooking

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

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	Montreal General Hospital
	Guiding and supporting family members of patients, and shadowing medical procedures within the ICU Bridge Program.	
2018	Tutor for students with disabilities	Concordia Access Center
	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.	
2013 – 2016	High School wrestling coach	Vincent Massey Collegiate
	Learned to communicate skills and advice.	
2015	Mentorship program for new athletes	Vanier College
	Helped new students balance education and athletics.	

References available upon request