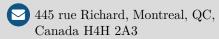
FRANCIS CARTER

Neuroscientist, Machine Learner, and Wrestler



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@ francis44carter@gmail.com

Personal Website

② LinkedIn Page

carterfrancis

Languages

English $\bullet \bullet \bullet \bullet \bullet$ French (native) $\bullet \bullet \bullet \bullet \bullet$

Programming

Scientific Python R MatLab Backend

Python (Django) •

Frontend

tendHTML, CSS

Javascript \bullet \bullet \bullet \bullet \bullet

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

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. Optoge-

netic 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.

Machine Learning Intern

2016-2017 Medical Coordinator Equinoxe Virtual Clinic

Patient care and communications with laboratories, hospitals, pharmacies,

Hydro-Québec

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 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.

The trade-off between pulse duration and power in optical excitation of midbrain dopamine neurons approximates Bloch's law

Pallikaras et Al.

bioRxiv

2020 Assessing quantitative MRI techniques using multimodal com-

parisons.
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 reinforce-

ment learning.
Carter et Al.

ourier et At.

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

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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 Scholar | ship (105,000\$) NSERC |
| | I declined this and FRQNT's awards | |
| 2017 - 2019 | 3x NSERC Undergraduate Student Resea | arch Award NSERC |
| 2018 - 2019 | 2x President's Award, Academic Award | Concordia University |
| 2018 - 2019 | 2x Molson Foundation Academic Exceller | nce 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 Championship | s Goiana, Brazil | |
| 2018 | Top 8 University athletes in Canada | USPORTS | |
| 2018 | Male Athlete of the Year Co | ncordia University | |
| | | | |

| Volunte | er Work | |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| 2017 - 2019 | Intensive Care Unit Volunteer Guiding and supporting family members of patien procedures within the ICU Bridge Program. | Montreal General Hospital ats, and shadowing medical |
| 2018 | Tutor for students with disabilities Learned to adapt communication and material Taught the importance of compassion. Learned and material for people with difficulties. | |
| 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 atl | Vanier College |