Matthew C. McFee

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Personal

Date of Birth: January 11, 1994

Citizenship: Canadian

Languages: English (Fluent), Spanish (Basic)

Education

MASc Biomedical Engineering, The University of Toronto, September 2018 - December 2020 (Expected)

BASc Chemical and Biological Engineering, The University of British Columbia, September 2012 - April 2017

Fellowships & Awards

TOeP Fellowship, September 2018 - Present

Barbara & Frank Milligan Graduate Fellowship Award, 2018

Additional Education & Certifications

SciNet Data Science Certificate, June 2019 - July 2020 (Expected)
The University of Toronto
Toronto, ON
Selected Courses: Neural Network Programming, Linux Shell Scripting, Machine Learning with Python, Introduction to Relational Databases

Research Interests

Computational biology, the applications of machine learning in biology and healthcare, modelling of biological processes/systems, bioengineering, biostatistics

Research Experience

Graduate Thesis

Adaption of a Muscle Endogenous Repair Assay for Industry and Academic Adoption (Supervisor: Dr. Penney Gilbert), September 2018 - December 2020

Undergraduate Thesis

Derivation of Blood-Brain Barrier Cells from Induced Pluripotent Stem Cells and Blood Brain Barrier Formation Kinetics for the Testing of Penetrability of Anti-neurodegenerative Drugs (Supervisor: Dr. Vikramaditya G. Yadav), September 2015 - April 2017

Capstone Design Project

Anaerobic Digestion of Brewery Spent Grain for the Production of Bio-methane, September 2016 - April 2017
Industry Advisors: Postmark Brewing, Quadrogen Power Systems Inc.

Teaching Experience

BME1479 - Biostatistics, Winter 2020
Institute of Biomaterials & Biomedical Engineering
The University of Toronto
Toronto, ON
Instructor: Dr. Julie Audet PhD, P. Eng.
Position: Teaching Assistant

Bachelor of Education Practicum (Physics), Summer 2017
The University of British Columbia, Vancouver School Board
Vancouver, BC
Instructor/Supervisor: Mr. Adam Klaassen
Position: Teaching Assistant

Professional Experience

Boston Scientific, March 2018 - June 2018
Vancouver, BC
Position: Manufacturing Associate (track to Manufacturing Engineer)

Journal Articles

In progress:

1. A. Fard*, **M. McFee***, E. Jacques, S. Davoudi, B. Xu, A.P. McGuigan & P.M. Gilbert, "Muscle endogenous repair assay adaptions for industry and academic adoption", in preparation for submission

Submitted:

1. B. Xu*, S. Davoudi*, J.L. Cardenas, **M. McFee**, E. Jacques, C.Y. Chin, A. Fard, M. Ebrahimi, M.A. Bakooshli, R. Marcellus, K. Tung, H. Ahn, H.J. Ginsberg, A.P. McGuigan & P.M. Gilbert, "An in vitro functional assay to predict in vivo muscle stem cell mediated repair", submitted to Nature Biotechnology (May 2020)
2. S. Barsky, A. Govette, M. Holowaty, L. O'Brien, **M. McFee**, M.A. Bakooshli & D. Moore, "(Run) Over the hill: exercising to prevent age-related denervation", submitted to Journal of Physiology (April 2020)

Published:

1. R. Vaez Ghaemi, I. L. Co, **M. McFee** & V. G. Yadav, "Brain organoids: An engineered solution for addressing neuroscience's grandest challenges", published by Advanced Biosystems (October 2018)

Note: * indicates equal contribution to authorship.

Conferences & Seminars

June 2020 **Oral Presentation.** "Making muscle! How we build miniature muscles to test repair enhancing drugs." The University of Toronto Engineering Research Conference (UTERC). Toronto, ON

May 2020 **Abstract Presentation.** "Adaping a Novel Muscle Endogenous Repair Assay For Industry and Academic Adoption" Muscle Health Awareness Day (YorkU). Toronto, ON

December 2019 **Student Seminar.** "MEndR Adaptions to Facilitate Industry and Academic Adoption" Institute of Biomaterials & Biomedical Engineering Student Seminar Series. Toronto, ON

May 2018 **Poster Presentation.** "Brain organoids: A transformative, new research tool for neuroscience research" BCRegMed Symposium. Vancouver, BC

May 2017 **Poster Presentation.** "Towards Layer-by-layer Manufacturing of Engineered Tissues" Canadian Biomaterials Society Conference. Winnipeg, MB

March 2017 **Poster Presentation.** "Engineering Cerebroids for the Testing of Anti-neurodegeneration Drugs" AICHe Pacific Northwest Regional Conference. Corvalis, OR

Volunteering & Mentorship

Graduate & Life Sciences Education Shadowing Program, February 2019 - July 2019
The University of Toronto
Toronto, ON
Position: Graduate Mentor

The University of Toronto Skule Alumni Mentorship Program, 2019
Toronto, ON
Position: Student Mentee
Mentor: Dr. Adam Grossman, PhD (Data Scientist)
Company: Praedicat

Entrepreneurial & Additional Professional Experience

H. Lorenzo, August 2015 - December 2017
Los Angeles, CA
Position: Seasonal Model and Stylist
Highlights: Raf Simons FW16, JULIUS SS17, N/A x Selfridges "Lamyland"

BAD BOY, January 2017 - March 2017
Vancouver, BC
Position: Co-founder, Model, and Sales

Notes: (1) Name change to "Stranger Showroom." (2) Closed as of March 2019 (3) Currently operating as of May 2020

Programming Languages & Software

Languages: **Python**, **R**, C, MATLAB, LaTeX, (R)Markdown, ImageJ Macro Language

Software: Emacs, Bash, Git, ImageJ, JMP, Inkscape, GraphPad Prism, PostgreSQL, Aspen Plus

Libraries: Pandas, NumPy, SciPy, scikit-learn, scikit-image, TensorFlow, Keras, Seaborn, OpenCV, ggplot2, tidyverse, org-mode

Operating Systems: Fedora, CentOS GNU/Linux, FreeBSD

Note: Bolded languages are those with which I have the most experience

Recreational Interests

Powerlifting, heavy metal music, fashion design, learning about mathematics, statistics and programming, watching horror films (Fulci and Carpenter are favourites)

References

Dr. Penney Gilbert, PhD
Relationship: Thesis Advisor
416-978-2501
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Dr. Alison McGuigan, PhD
Relationship: Research collaborator, Co-author
416-978-7552
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Dr. Julie Audet, PhD, P. Eng.
Relationship: Course Instructor
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