Matthew Scott

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Languages:	Bilingual French and English	GitHub:	https://github.com/mscott99

Education

2021-current (in progress) MSc in Mathematics, **University of British Columbia**
Grade Average 92%
Supervisors: Prof. Yaniv Plan and Prof. Özgür Yilmaz

2017-2021 BSc Joint Honours Math and Physics, **Mcgill University**
with Comp. Sci. Minor. Gpa: 3.89/4.00
distinction, first-class honours

2015 - 2017 Honours Pure and Applied Science, **Marianopolis College**

Publication

Aaron Berk, Simone Brugiapaglia, Babhru Joshi, Yaniv Plan, **Matthew Scott**, Özgür Yilmaz, *A Coherence Parameter Characterizing Generative Compressed Sensing with Fourier Measurements*, submitted to IEEE Journal on Selected Areas in Information Theory, accepted, 2022, arXiv: 2207.09340.

Work Experience

2021-current | Research and Teaching Assistant, **University of British Columbia**
Supervised by Prof. Özgür Yilmaz and Prof. Yaniv Plan
- Research in the theory of Generative (Deep) Compressed Sensing
- Study and use of High-Dimensional Probability.
- Programming using the Julia programming language.
- Teaching duties: grading and tutoring in the math learning center.

Summer 2020 | Research in Computer Science, **McGill University**
Supervised by Prof. Prakash Panangaden
- Application of the "FDR" (Fluctuation-Dissipation Relation) learning rate optimizer by Sho Yaida to the actor-critic algorithm in Reinforcement Learning.
- Novel theoretical results about the behaviour of the optimizer.
- Modifications to the algorithm that resulted in improved performance.

Summer 2018 | Machine Learning Intern, **Decathlon**, Montreal
- Design and implementation of a robust API in python which determines sport popularity from google search data.
- Design and implementation of Sales prediction algorithm using recursive Neural Nets. Outperformed 4/5 of the algorithms implemented by the company at the time. Additionally, this new solution could be used for long-term predictions, which no other competing solution could do.

2017 | Tutor in Mathematics, **Paramount Study school**

Summer 2017 | Web Developer at **GoRush**, Montreal
- Full Stack mobile web development of an Uber-like app in JavaScript.

Competitions and Awards

2020 | NSERC-USRA Research Award ($6000)

2017 | *Ernest Fox Award for excellence in Mathematics* from **Marianopolis College**
This award is given to a single graduating student of
the CEGEP Marianopolis each year. Marianopolis College is one of the
most prestigious CEGEPs in Montreal, with a student body
of at least 2000 students.

2015 | *School champion* of the **Fermat Math Contest**

2015 | *Meritas: Nomination in Physics* at **Notre-Dame** (secondary school)

2014 | *Placed 7/161* in the **AMQ Math Competition**
Participation in the associated math camp.

2016, 2017 | *Top 25%* of the **CCC Programing Competition** both years.

2017: | *Best Cegep* and *Most Imaginative Robot* at the Hackathon **Robohacks**

2017: | *Special Mention* at the Game Jam **McGameJam**

Personal Projects

2022 | Youtube Video (animated) explaining the Legendre Transform.

2022 | Personal Blog about Compressed Sensing.

2021 | Machinations, the online game.

2016 | Development of the android mobile game Cracker Craft
- 8000 downloads on Google Play Store

Programming Skills

- Julia Programming Language with Flux.jl used for Generative Compressed Sensing.
- Python: Use of PyTorch for reinforcement learning. Use of Flask to make an API.
- C# in the Unity game engine.
- JavaScript for web development with Meteor.