Emmanuel Sales

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EDUCATION

University of British Columbia
Vancouver, BC

M.Sc., Computer Science — 2020-2022 (projected)

- Advised by Dr. Nicholas Harvey. Master's thesis in progress, researching graph neural networks.

B.Sc., Double Major: Honours Computer Science, Major Statistics — 2015-2020

- 4.33/4.33 GPA (Distinction)
- Undergraduate Hons. Thesis: "Restricted-dimension subgradient descent: asymptotic bounds on error", supervised by Dr. Nicholas Harvey

EXPERIENCE

Google Vancouver, BC (Remote) | Software Developer Intern — Summer 2020, Summer 2021

- 2021: Created BigQuery GIS S2Geography functions. Included design, implementation, and leading of customer discussions about their usage.
- 2020: Designed and implemented the DBSCAN unsupervised learning algorithm for geospatial data, as well as the convex hull function.

Worked with: C++, Google BigQuery

Google Mountain View, CA | Software Engineering Intern — Summer 2019

- Worked on Google Earth Engine, a data platform provided by Google for geospatial analysis at scale.
- Designed and developed a cloud application allowing users to query Earth Engine assets using the open Web Map Tile Standard.

Worked with: Python, Flask, Google App Engine, Java

Cockroach Labs New York, NY | Backend Engineering Intern — Summer 2018

- Improved the performance of a class of delete operations by a factor of 1 billion.
- Developed a workload simulator for testing the performance of a geo-distributed CockroachDB cluster.
- Introduced programming language features in CockroachDB for compatibility with PostgreSQL semantics.

Worked with: Go, Git

Splunk Vancouver, BC | Software Developer Intern — Summer 2017

Worked with: Scala, Python, React.js, PostgreSQL, Docker, Git

Hootsuite Vancouver, BC | Software Developer Intern — Summer 2015, Summer 2016

Worked with: Scala, React.js, Python, Ruby, Mesos, Docker, Git

SELECTED PROJECTS

Direction-of-Voice filter
https://github.com/AudioMLLab/dov-audio-filter

- Created an application to filter undesired voice audio by using machine learning to eliminate the portion of audio originating from speakers not facing the microphone. Joint work with Abiramy Kuganesan.

This Pokémon Does Not Exist
https://github.com/emsal0/pkmn_doesnotexist

- Developed a machine learning project in TensorFlow that uses a variational autoencoder to generate novel Pokémon sprites. Entered into nwHacks 2020.

Twitter Clustering Project
https://emsal.me/blog/4

- Conducted a machine learning analysis using Python and Julia.
- Implemented the DBSCAN clustering algorithm on a social network graph structure to identify distinct groups.

Socksify
https://github.com/emsal0/Socksify

- Created a program written in C that allows users to run processes with all outgoing TCP traffic going through a SOCKS5 proxy.

TECHNICAL SKILLS

- **Areas of expertise**: Algorithms, Machine Learning, Statistics, Backend Development
- **Programming languages**: Python, Julia, R, C++, Go, Java, Scala, JavaScript
- **Tools**: Jupyter, Tensorflow, Flux.jl, PostgreSQL, Git, Perforce, Linux