

BENJAMIN LABRECQUE

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EDUCATION

McGill University, Montreal

September 2014 - December 2020

B.Sc., Major Mathematics and Computer Science

GPA: 3.67

- Coursework toward B.Eng. in Mechanical Engineering (2014 - 2016)
- Relevant Coursework: Algorithms & Data Structures, Applied Machine Learning, Artificial Intelligence, Probability Statistics, Database Systems, Stochastic Processes, Discrete Math, Lin. Algebra, Differential Equations, Advanced Calculus
- Principal's Student-Athlete Honour Roll (Soccer)

Kantonsschule Sursee, Switzerland

Graduated June 2014

Swiss Matura, concentration in Physics and applications of Mathematics

WORK EXPERIENCE

Royal Bank of Canada - Amplify Program - Data Science Intern

May 2019 - August 2019

- Developed a feature providing users of GetDigs by RBC Ventures with a competitive advantage in the rental market.
- Predicted rent prices in Toronto based on historical data and presenting information to users through a web application.
- Formatted geospatial data for optimal performance in web application and matching users to listings based on location.

SELECTED PROJECTS

Competitive Programming - C++

- Implementing and using common algorithms and data structures in C++ to solve computational problems.
- Enrolled in a programming challenges course and part of a competitive programming club at McGill University.

Kaggle Competition - Python, Keras, Sklearn

- Finished 5th out of 56 teams in Applied Machine Learning class at McGill.
- Trained a CNN using Keras to classify 10'000 images from the Google "Quick Draw!" dataset with 85% accuracy.
- Implemented a fully connected neural network trained by backpropagation from scratch in Python.

ICLR 2019 Reproducibility Challenge - Python, PyTorch

- Analyzed a paper on lossless data compression submitted at the conference and reproduced the presented results.
- Optimized the hyperparameters of the Variational Autoencoder used to achieve better compression rates.

Sentiment classification of Yelp restaurant and IMDB movie reviews - Python, Sklearn

- Classified 25000 IMDB reviews into positive or negative sentiment and 2000 Yelp reviews into ratings from 1 to 5.
- Compared several classifiers based on F1-measure using both BBoW and FBoW: GNB, Linear SVM and Decision Trees.
- Performed hyperparameter tuning on all classifiers using GridSearchCV and compared performance to baseline classifier.

Simulation of Radioactive Decay and Data Analysis - GeoGebra

- Designed an experiment using dices to investigate composite and sequential radioactive decay.
- Estimated the unobserved decay constants and half-life periods using minimum chi-squared estimation.
- Plotted correlation of decay constant and initial number of nuclei through covariance ellipse to get 2D confidence interval.

Personal Website & Photography Portfolio - HTML, CSS, JavaScript

- Designed and built a responsive website from scratch to display personal photography portfolio.
- <https://benji19967.github.io>

SKILLS

Languages/technologies: Proficient in: C/C++, Java, Python, Unix/Linux, NumPy; Familiar with: R, SQL, GCP, HTML, CSS; Previously used: Keras, PyTorch, JavaScript, JQuery

Other languages: Fluent in French, English and German. Currently tackling Spanish.

EXTRA-CURRICULAR

McGill Rocket Team

September 2015 - December 2016

Subteam Lead - Body Tube and Nose Cone

- Designed and manufactured the body tube and nose cone to be incorporated in a rocket competing in the Space Port America Cup. Guided a dozen new students through the manufacturing process.