**Maxime Sirois**

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Portfolio: [Max0513.github.io](https://github.com/Max0513/Max0513.github.io)

Tableau Public: <https://public.tableau.com/app/profile/maxime.sirois/vizzes>

**819-342-8499**

Hello, I'm Max and I'm passionate about finding solutions to complex problems. Data has a lot of hidden gems, and I love digging through the rubble to unearth tangible insights that had value to the business. Please visit my Github & Portfolio page to see what I can bring to your company.

**Skills**

# Programming: SQL, Python (Base, Pandas, Numpy, Matplotlib, Scikit-Learn, Seaborn, Streamlit)

# Tools: Excel, Tableau, Github, PowerBI

# Math: Linear Algebra, Statistics (Hypothesis Testing, AB Testing, Central Limit Theorem, Distributions, advanced derivatives and Integrals)

# Machine Learning: Linear Regression, Logistic Regression, Decision Trees, Random Forest, KNN, k-means, PCA, Association Rule Learning, Causal Impact Analysis

**Projects**

* **Employee turnover analysis using ML**

*EDA (python) – ML (Tree based classification)*

<https://github.com/Max0513/Turn-over-analysis---Saliford->

Saliford Motors is losing employees at a high rate, so they ask for a machine learning model that could predict turnover, giving them an opportunity for action in preventing the departure.

I analyzed data collected from 14999 employees that had been tagged as departed or not. I then generated insights for stakeholders to investigate regarding possible reasons for leave. Finally, I constructed a Tree-based ML model with an f1 score of 94% to screen current employees for departure, based on previous experience.

The Tree Model was chosen over other ML tools for its high interpretability, paired with its high accuracy, giving maximum potential for action to stakeholders, but the insights from EDA should be reviewed carefully to implement measures that could remedy the problem at the root, before any need for a ML model.

* **Predicting customer loyalty using ML**

*ML (Regression) – Data prep (Python)*

<https://github.com/Max0513/ABC-Groceries>

ABC-Groceries has had 50% of their customers tagged for customer loyalty, representing the percentage of their groceries spent at their store rather than from their competitors. They feel that having a reliable way of assigning the loyalty score to the rest of their customers would greatly help the efficiency of the marketing team.

To remedy the situation, I constructed three models (Multiple regression, Tree based and Random Forest) and compared the results for R2 accuracy. The chosen model predicted by 4-fold cross-validation a prediction R2 score of 0.925, meaning the chosen dimensions account for about 92% of the variance in the loyalty score of the customer. With that, the marketing team will have a reliable way of estimating the loyalty score of the missing customers.

* **Assessing campaign performance using Chi2**

*Statistics (chi2 test for independence) - python*

<https://github.com/Max0513/ABC-Groceries>

ABC-Groceries has sent mailers in their recent campaign to incentivize clients to a subscription-based delivery. They did so in two different formats: A high-cost mailer and a budget mailer. They now want to know if the increase in cost in the first mailer resulted in a significatively higher subscription rate.

To answer this question, I applied the chi squared test for independence on the results of the campaign to see if the higher subscription rate of the higher cost mailer was statistically significant. Although the high-cost mailer resulted in higher signup rates (37.8% rather than 32.8%), we cannot conclude that it will incur higher revenue for the company.

# Certificates

## Google advanced data analytics certificate (GCC)

# Completed FEBRUARY 2024

## Mathematical Biostatistics Boot Camp 1

# Completed JULY 2024

## Data Science Infinity

# Completed February 2025

# Education

## Université Laval, Quebec *Mechanical engineering*

SEPTEMBER 2020 - MAI 2023

48 completed credits of a Mechanical Engineering degree including **advanced math**, **statistics** and **project management.**

**Work Experience**

* **Ashton, Quebec** *Assistant Manager*

FEBRUARY 2011 - PRESENT

Coached a team of 40 restaurant workers, raising the bar of their customer service, the quality of their work and getting them to work as a team which raised their productivity exponentially.