

# Sky Allinott

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## WORK EXPERIENCE

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### Government of Alberta

October 2022 - Present

*Data Scientist (Alberta Insurance Rate Board)*

*Edmonton, AB*

- Improved the usage of data by utilising SQL and Power BI to create empowering dashboards.
- Leveraged data by conducting studies into the auto insurance market in Alberta with R and Python.
- Reviewed GLM and machine learning models submitted by insurers to ensure they charge fair and equitable rates.
- Presented studies and complex statistical topics monthly to our board.

### University of Alberta

August 2022 - November 2022

*Part Time Research Assistant (Department of Economics)*

*Edmonton, AB*

- Constructing a rich panel dataset (4 million rows, 100+ features) on Edmonton and Calgary real estate.
  - Created measures on crime, transit accessibility, development activity, pollution levels and more.
  - **Insight:** Half the properties in the City do not live within 1 kilometre of a grocery store.

### University of Alberta

September 2021 – April 2022

*Graduate Teaching Assistant*

*Edmonton, AB*

- Improved class instruction by presenting common class misunderstandings to the instructor.

### City of Edmonton

May 2021 – September 2021

*Business Analyst Student (Urban Planning and Economy)*

*Edmonton, AB*

- Determined if City initiatives to reduce permit timelines were successful using internal permit data.
  - Communicated the success and failure of these initiatives regularly to senior leadership.
  - Shared with the public by Mayor Amerjeet Sohi and the City of Edmonton twitter account.
- Improved team forecasting by introducing machine learning methods for model selection in R.
- Saved time for the team by implementing a script that pulled external data and published it to Google Sheets.

### Government of Canada

June 2019 – December 2020

*Citizenship Assistant (Citizenship Canada)*

*Edmonton, AB*

- Implemented a database of client requests and information to improve efficiency and reduce errors.

## EDUCATION

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### University of Alberta

June 2022

*Masters of Arts, Economics (GPA: 3.9)*

*Edmonton, AB*

- **Thesis:** Effect of LRT Expansion on Neighbouring Property Valuations: Evidence from Edmonton Alberta
  - Quantified the effect by distance to the station, project stage, and property value quantiles.
  - **Insight:** Nearest properties depreciated 5%, while further properties appreciated as much as 12%.

### University of Alberta

September 2021

*Bachelors of Arts with Honours, Honours Economics*

*Edmonton, AB*

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## ACADEMIC RESEARCH

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### Effect of LRT Expansion on Neighbouring Properties

June 2022

*Stata*

- Determined causal effect of new LRT stations on property value in Edmonton Alberta.

### Forecasting Aggregate Investment: Comparing Approaches

April 2022

*R*

[Project Link](#)

- Compared forecasting ability of a static theoretical investment formation equation to time series models.

### Price Effect of a Gasoline Cartel

February 2022

*R*

- Estimated damages and cartel period of a collusive gasoline market in Southern Ontario.
  - Utilised QLR testing to identify cartel period, and reduced form econometric models for price effect.
  - **Insight:** Weak results in weekly data; evidence that the cartel changed daily price cycle behaviour.

### Impact of Childhood Computer Access on Wage Determination

April 2022

*Stata*

- Measured the impact additional years of computer access as a child had on adulthood wages.

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## PERSONAL PROJECTS

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### Answering Business Questions

August 2022

*SQL*

[Project Link](#)

- Utilising a theoretical business' database, I answer many questions that may be asked of a data/business analyst.
  - I utilise multi table joins, subqueries, stored procedures, window functions, ranks, rollups, and more.

### Anomaly Detection: Credit Card Fraud

August 2022

*Python*

[Project Link](#)

- Compared an unsupervised model of anomaly detection to a tuned model on a tiny subset of the data.
  - With only 10,000 observations (of 1,000,000), XGBoost heavily outperforms the unsupervised model.

### Comparing Daily Weather Forecasting Accuracy for Various Models

July 2022

*R and Python*

[Project Link](#)

- Forecasted daily temperature 6 months ahead using Prophet, XGBoost, ARIMA, and a neural network..
  - Weather is a challenging forecast, but the best model had a mean absolute error of just 3.71 degrees.

### Forecasting Hourly Energy Consumption with Prophet

July 2022

*R*

[Project Link](#)

- Forecasting energy consumption 14 (336 hours) days ahead using an hourly series with >100,000 observations.
  - Achieved an average inaccuracy of only 8.7% (typical wisdom suggests <10% is an “excellent” forecast)

### What Determines Edmonton Housing Values?

July 2022

*Python*

[Project Link](#)

- Predicted Edmonton housing valuations on a personally made dataset using a tuned machine learning model.
  - Model had an average inaccuracy of just 6%, or approximately \$16,500.
  - **Insight:** Lot size, structure size, and distance to downtown were the most important variables.

### **Predicting Spotify Song Popularity**

**June 2022**

*Python*

[Project Link](#)

- Utilised the Spotify API to pull track information and predict song popularity with machine learning models.
  - Compared XGBoost, RandomForest and OLS models, with XGBoost performing best.

### **Predicting Spotify Song Popularity using Neural Networks**

**July 2022**

*R*

[Project Link](#)

- Utilised tensorflow to create and tune a neural network to predict Spotify song popularity.
  - Utilised the Keras interface and tuned the network via early stopping and grid search.

### **Forecasting Change in Stock Price**

**April 2021**

*R*

[Project Link](#)

- Determined probability of a stock price increasing/decreasing the next day using time series cross-validation.
  - Utilised a logit model with price lags for a prediction and then bootstrapped a prediction interval.

### **Predicting IBM Employee Attrition**

**April 2021**

*R*

[Project Link](#)

- Compared predictive power of three machine learning models in determining employee attrition.
  - Most important variables were overtime hours, commute, and years without a promotion.

### **Tableau Dashboards**

*Tableau*

[Tableau Portfolio](#)

- Employed Tableau to create various visually engaging and interactive data visualisations.

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## **AWARDS**

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### **Graduate Teaching Assistantship**

**2021**

*University of Alberta*

- Awarded to select candidates of the Masters of Economics program based on outstanding scholastic standing.

### **Emerson and Tang Family Scholarship**

**2020**

*University of Alberta*

- Awarded to a student with superior academic achievement in Economics and has shown involvement in sports.

### **KD Verville Scholarship for Excellence in Economics**

**2020**

*University of Alberta*

- Awarded annually to a student with superior academic achievement entering their second, third, or fourth year of the Honours Economics program.

### **Gwendolyn Ewan Scholarship (University of Alberta, 2019)**

**2019**

*University of Alberta*

- Awarded for superior academic achievement to a student from the Northwest Territories.

### **Dean's Honours List**

**2018, 2019, 2020, 2021, 2022**

*University of Alberta*

- Presented to students possessing a 3.5 GPA or better on a full-time course load.