

# Taylor D. Edwards, PhD

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## Summary

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Data scientist and researcher with seven-plus years' experience in industry, academia, and government. I specialize in time-series analysis, forecasting, and geospatial analysis.

## Experience

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**Venterra Realty** Richmond Hill, Ontario  
*Data Scientist* Oct. 2025 - present

- Designed and deployed spatio-temporal forecasting models for targeted US housing markets. Applied traditional econometric models (ARIMA, statespace) for explainability and due diligence; and modern deep learning (PyTorch-forecasting, GluonTS) for the most accurate predictions.
- Built Streamlit dashboard for finance team to explore market data and run forecast inference on-demand.
- Presented alongside executive team to external investors, sharing how we leverage market data to maximize rental returns.

**Health Canada** Toronto  
*Data Scientist* Oct. 2023 - Oct. 2025 (2 yrs.)

- Designed features and fit models for pollution from Toronto's Pearson Airport; processed field data with ArcGIS Pro, fit model with Python (linear, XGBoost). Results showed airport emissions can triple nearby urban air pollution.
- Cleaned and engineered features from 1000+ column survey data of indoor air pollution for further modelling.
- Led Python workshop for 20+ environmental scientists transitioning from R and SAS.

**University of Toronto** Toronto  
*Graduate Researcher* May 2018 - Dec. 2024 (6.7 yrs.)

- Produced novel findings in pollution science by QA'ing 100,000,000's of air pollution data points with PostgreSQL, pandas; analyzing with sklearn, scipy, numpy, etc. Designed new method for getting results from highly collinear data.
- Developed Python API for EPA dispersion models written in Fortran.

**Imperial Oil Ltd.** Nanticoke, Ontario  
*Applications Engineering Intern* May 2016 - Aug. 2017 (1.3 yrs.)

- Designed and deployed electronic recording system for tank farm measurements, eliminating paper records.
- Programmed new interfaces in legacy Honeywell system, reducing operator use time from minutes to seconds.

## Education

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**Doctor of Philosophy (PhD)**, Chemical Engineering University of Toronto — 2025  
Thesis titled *Novel methods for air emissions measurement and source apportionment applied at a major urban highway*.

## Tech stack & skills

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**Python:** pandas, Polars, NumPy, SciPy, geopandas, jupyter, Streamlit.   **Stats & AI/ML:** statsmodels, PyMC, scikit-learn, gradient boosting, optuna/hyperopt, PyTorch, darts.

**Data & Ops:** AWS, MS Fabric, Databricks, Snowflake, PySpark, MLflow, Ray, SQL.   **Others:** R, Mathematica, Julia, GDScript, git, ArcGIS Pro, Fortran, L<sup>A</sup>T<sub>E</sub>X.

## Achievements

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- Used ML to estimate airborne pollutants with > 90% accuracy ([doi.org/10.5194/amt-18-2201-2025](https://doi.org/10.5194/amt-18-2201-2025) [🔗](#)).
- Fit complex empirical models with multiple data sources ([doi.org/10.5194/amt-18-2201-2025](https://doi.org/10.5194/amt-18-2201-2025) [🔗](#)).
- Published open-source Python package for air pollution plotting ([github.com/Zelpuz/bivapp](https://github.com/Zelpuz/bivapp) [🔗](#))