

# Andres Castillo

Toronto, ON, Canada

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## Education

### University of Toronto

MASc in Civil Engineering - Transportation and Complex Systems

Toronto, Canada

Jan 2022 - Dec 2023

- **Thesis:** Predicting salaries in the Greater Toronto Area - A Bayesian approach
- **Supervisor:** Prof. Eric Miller

### Universidad Nacional de Colombia

BSc. in Civil Engineering

Bogota, Colombia

Jun 2010 - Dec 2015

- Teaching Assistant for Traffic Engineering Course and Research Assistant at the Transportation Research Group

## Work Experience

### UofT Travel Modelling Group

Research Assistant

Toronto, Canada

Jan 2022 - Dec 2023

- Prepared several scenarios to investigate the effects of COVID-19 in the Toronto transportation system using the GTA Model and EMME.
- Developed a Bayesian hierarchical model for predicting salaries in the Greater Toronto Area. This model was designed as a component of the ILUTE framework, an Agent-Based simulation model for evaluating land use and transport interactions in urban areas.

### Steer Group

Senior Consultant

Consultant

Assistant Consultant

Bogota, Colombia

Nov 2020 - Dec 2021

Jan 2018 - Oct 2020

Sep 2016 - Dec 2017

- Generated traffic and revenue forecasts for over ten highway projects in Colombia (Public-Private Partnerships), assuming the roles of data analyst, transport modeller, and project manager.
- Automated and standardized the EMME modelling pipeline using Python scripts, reducing the time spent on model calibration and scenario analysis by 30% for the Bogota office's modelling team.
- Led the data and spatial analysis team to support economic reactivation during COVID-19 lockdowns in Bogota and Mexico City, producing several machine learning models (regression, classification, clustering) and interactive dashboards to visualize the results and support the decision-making process.
- Supported the development of multiple travel demand studies and business cases for the development of Highways and Railways projects in Latin and North America as a data analyst and transport modeller, using different tools such as Excel spreadsheet modelling, machine learning, statistical modelling, and data mining.

## Projects and Leadership

### Team leader of the MOVID19 Hackathon winning proposal

NUMO Alliance- DATASKETCH

Bogota, Colombia

Mar 2020

- 4-day competition to develop solutions aimed at improving the public transport quality in Bogotá during the COVID-19 Pandemic.
- Our team developed a web application to collect and visualize travel data to understand the travel needs of essential workers.

### Team leader and web developer of a Research and Development (R&D) project

Steer Group

Bogota, Colombia

Nov 2018 - Dec 2021

- Led the development of a web application to collect, analyze, and visualize traffic data from Google Maps API using Django, PostgreSQL, D3.js, and Leaflet. All services are deployed in AWS.
- This application is currently used by different teams across the company and automatically manages the data collection process (Costs, Time Zones, Notifications, etc.).

## Skills

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|-----------------------------|--|
| <b>Programming</b>          | Python (Pandas, NumPy, Scikit-learn, etc.). Familiar with PyTorch, JAX, Django, HTML/CSS, JavaScript, SQL. |
| <b>Specialized Software</b> | EMME-4, ArcGIS, QGIS, Illustrator.   |
| <b>Cloud Services</b>       | AWS, Google Cloud Platform.  |
| <b>Miscellaneous</b>        | PostgreSQL, Excel, Webscraping (Selenium), Git. Familiar with Latex, Linux, Docker.                        |
| <b>Languages</b>            | English (Fluent), Spanish (Native).  |