Vidal Mendoza Tinoco

Data Scientist -- Kelowna, British Columbia, Canada

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Summary

Data Scientist with 3 years experience in machine Learning and developing data-driven solutions. Passionate about sports analytics, with a keen interest in leveraging data to improve both performance metrics and outcomes. Has conducted research on political economy and protests. Committed to projects that promote social well-being, utilizes data to support meaningful changes in public policy. Fan of Chivas soccer team from Guadalajara; also enjoys literature and philosophy; lead a Hegel and Borges reading group in the past.
My broad interests enrich my ability to collaborate across disciplines and solve complex problems.

Professional Experience

Mexico's Federal Judicial Power Election Tribunal (TEPJF in Spanish) *Coyoacán, Mexico City*

Data Scientist *September, 2023 – August 2024*

- Developed a ShinyApp and R packages to streamline data extraction and cleaning from the General Agreements Ministry's Information System (SISGA), utilizing SQL queries. These tools reduced the data processing time from two hours to 15 minutes, achieving a time reduction of over 87%. This enhancement improved responsiveness to information requests submitted via the National Transparency Portal.
- Led and assembled the development of Natural Language Processing (NLP) models using Keras and TensorFlow to automate the classification and thematization of cases for the Superior Chamber of the TEPJF. This automation reduced the case classification time from approximately 20 minutes (with manual reading of the full case file) to 2 minutes, significantly improving the efficiency of challenge resolutions during the 2024 electoral process.

State of Michoacán's Finances Ministry – Department Head *Morelia, Michoacán*

Data Scientist *November 2021 - September 2023*

- Generated predictive models using supervised machine learning techniques (lasso and ridge regression) to forecast tax collection trends and estimate tax multipliers such as fiscal stress. These models enabled continuous monitoring of the state government's financial health, leading to the restructuring of public debt, which saved 540 million Mexican pesos annually. The savings were reinvested in various social programs, with public spending strategically directed to different sectors of the population using unsupervised machine learning methods (K-means clustering) to align with the state government's plan.
- Designed and delivered a comprehensive data analysis course using R for the staff of the State of Michoacán's Finances Ministry. The course covered R programming fundamentals, data manipulation with Dplyr, data visualization using Ggplot2 and Plotly, and report generation with RMarkdown.

City Council of Erongarícuaro, in the State of Michoacán – External Consultant *Erongarícuaro, Michoacán (Hybrid)*

Public Policy Consultant *December 2021 - June 2022*

- Directed data collection through surveys and discussion panels in the municipality of Erongarícuaro, Michoacán, to identify key development challenges, which informed the creation of the municipal development plan. Through the analysis of interviews and the development plan, primary schools and sports centers were constructed, addressing critical social needs and improving the municipality's infrastructure. These public policies were designed to prevent and alleviate obstacles to the municipality's social welfare.
- Analyzed the behavior of various social issues, such as violence and access to drinking water, using time series regression models with seasonal dummy variables. This analysis ensured 100% water supply coverage in the municipality from 2021 to 2024.

Mexican Autonomous Technological Institute, ITAM (in Spanish) *Álvaro Obregón, Mexico City*

Research Assistant *August 2019 - May 2020*

- Assisted in the development of research projects led by Dr. Eric Magar (ITAM), contributing to key studies on public elections and political behavior.
- Contributed and maintained multiple databases related to public election research, leveraging Git and GitHub for version control and collaboration. Notably, one database focused on tracking shifts in electoral preferences across Mexico, providing critical insights for ongoing research.

Education

University of British Columbia, UBC *Kelowna, British Columbia*

Master of Science in Data Science *September 2024 - July 2025*

- Relevant courses: web and cloud computing, bayesian inference, advanced predictive modelling, supervised learning, unsupervised and semi-supervised learning.

Mexican Autonomous Technological Institute, ITAM (in Spanish) *Álvaro Obregón, Mexico City*

Bachelor of Arts in Political Science *August 2017 - July 2021*

- Dissertation: Green Gold Splashes. Effects of the Avocado Boom on Income Inequality in the State of Michoacán.
- Relevant courses: econometrics, causal inference, statistical inference, probability, algebra, and calculus.

Harris School of Public Policy – University of Chicago *Chicago, Illinois*

Data and Policy Summer Scholar Program (DPSS) *Summer 2021*

- Final Research Project: Quantitative Analysis of the Protests That Were Causes by the Murder of George Floyd in the United States.
- Relevant Courses: Data analysis for public policies.

Projects

Green Gold Splashes *Remote*

Supervised by Dr. Antonella Bandiera (ITAM) *2022-2023*

- Conducted research on the impact of demand shocks, such as the avocado boom, on income inequality in Michoacán. Utilized formal income data from 2003 to 2020 to calculate the Gini coefficient at the municipal level. Employed a difference-in-difference (Diff in Diff) design and Event Study Models to analyze and compare the effects across municipalities.

Skills

Programming languages

- R, RMarkdown, Quarto, Python, SQL, Git/GitHub and Latex.

Packages

- Tidyverse, Dplyr, Ggplot2, Shiny, Plotly, Caret, Pandas, Numpy, Keras and TensorFlow.

Soft skills

- Team Collaboration, Leadership and Mentorship, Emotional Intelligence, Adaptability, Conflict Resolution, Interpersonal Communication.