

Sebastián Cadavid-Sánchez

Carrera 68 b 22 a 71, Bogotá. Colombia

☎ +57 3113487595 | ✉ s.cadavid1587@gmail.com | 🏠 <https://c1587s.github.io/scadavidsanchez> | 📄 github.com/c1587s

Skills

Programming

Python (pytorch, tensorflow, Keras, NetworkX, NumPy, Scikit-learn, LightGBM, dask, pymc3, opencv), R (tidyverse, rstan, glm, RSiena), JavaScript (react), shell (bash, zsh), MATLAB, Stata, SQL, ArcGIS

Systems

Spark, Kubernetes, Kubeflow, Postgres/PostGIS, AWS, Docker, Airflow

Skills

Machine Learning, data pipelining, distributed systems, parallel processing, geospatial visualization, data visualization, time-series analysis, bayesian inference, econometrics

Languages

Spanish (Native), English (Proficient)

Experience

Biometrio.Earth

Berlin, Germany

Data Scientist - Machine Learning Engineer (Remote position)

November 2022 - Current

- Collaborating with a twelve-person team to build and implement a deep-learning-driven analysis system using in-situ deployed sensors (audio, image, and video) to measure and monitor the integrity, longevity, and risks of nature-based solution projects of multiple sizes.
- Designing and training Deep Learning models to detect animal taxonomies and vegetation changes using multimodal data from audio and images.
- Responsible for scaling data analysis and processing to terabyte-scale using distributed data-processing pipelines.

Sciences Po

Paris, France

Associate Researcher

February 2022 - January 2023

- Collaborated with an eight-person team to develop a fine-tuned neural network model to perform Entity linking (EL) over attributes of cultural heritage objects from digital museum collections data.
- Produced a Python library to predict and store annotations from descriptions of objects from over data from 46 digital museum collections. The package also allows for further training/fine-tuning pipelines using parallel processing.
- Designed and optimized NLP model training and deploying pipelines to be deployed on the Jean Zay supercomputer.

National Mexican Commission for the Knowledge and Use of Diversity (CONABIO)

Mexico City, Mexico

Data Scientist - Machine Learning Engineer (Remote Position)

Nov 2021 - Oct 2022

- Collaborated with a seven-person multi-disciplinary team to develop CNN models to detect and classify taxonomies from acoustic databases.
- Automated and optimized cloud-hosted data and machine learning pipelines to process acoustic data and ML pipelines from in-situ sensors across the Mexican territory (SiPeCaM).
- Designed and implemented biodiversity reports delivered to policymakers.

RAPPI

Bogotá, Colombia

Data Scientist

August 2021 - Nov 2021

- Collaborated with a fifteen-person multi-disciplinary at the forecast department.
- In charge of developing cloud-hosted data pipelines to deliver daily-updated insights about courier's offer (at a geospatial scale) to production teams.
- In charge of providing insights, data analysis, and data visualization tools to analyze user demand and courier offers nationwide.

ITAM - Center for Data Science (CDS)

Mexico City, Mexico

Research Fellow

August 2019 - December 2020

- Utilized Machine Learning techniques and longitudinal data, to develop an Early Warning System (EWS) for identifying undergraduate students at high risk of abandoning their studies. Outputs were delivered to ITAM authorities to provide assistive interventions.
- In charge of structuring databases, exploring data patterns, and implementing training and validation of machine learning models to generate risk score predictions for each student.
- Perform algorithm bias/fairness analysis among groups of students to address the interpretability of assistive actions over students.

ITAM - Center for Economic Research (CIE)

Mexico City, Mexico

Research Fellow

November 2019 - March 2021

- Developed algorithms for scrapping educational data from open digital data sources of the Mexican Government.
- Constructed geospatial databases of more than 230,000 academic institutions in Mexico (high and primary school levels).
- Developed geospatial algorithms for identifying commuting zones across the Mexican territory.
- Implemented graph algorithms for community detection by using migration data from more than 1,000,000 students at the high and primary school levels in Mexico.

Center for Latin American Monetary Studies (CEMLA)

Mexico City, Mexico

Economist

January 2017 - June 2019

- Implemented routines for modeling and estimating Stochastic General Equilibrium models using Markov Switching and Bayesian techniques for analyzing macroeconomic instabilities in developing countries.
- Led coordination and organization of academic conferences, courses, and seminars for researchers from LAC Central Banks. Organized courses include: Regime Switching in VAR and DSGE models (CEMLA, 2018), and DSGE models in the Policy-Making Process (CEMLA and International Monetary Fund, 2017).

Education

Instituto Tecnológico Autónomo de México (ITAM)

MSc in Data Science

Mexico City, Mexico

2020-2021

Universidad de los Andes

MA in Economics

Bogotá, Colombia

2017

Universidad de los Andes

BA in Economics

Bogotá, Colombia

2014

Complementary Education

Network Science Conference

Dynamics of Networks and Continuous Behavior; Analysis of Multiplex Networks; Analysis of Network Dynamics and Peer Influence with RSiena; Bayesian ERGMS with the Bergm package

Summer 2021

Artificial Intelligence

Human Artificial Intelligence for Human Development (Universidad de los Andes), Ethics in Artificial Intelligence (ITAM)

Summer 2020

Awards

XPrize

Member of the semi-finalist team (Alouatta) in the XPrize Rainforest competition. 10,000 USD Prize

2023

- In charge of developing pipelines for training and deploying CNN models for the identification of amphibians, bats and birds from audio recordings collected in the field.

ITAM

Departmental Fellowship - Faculty of Mathematical, Statistical and Actuarial Sciences

2019 - 2020

- Merit-based full tuition scholarship

Ernst and Young - IMEF

XXXIV Prize for Financial and Economic Research

2018

- Research Award in the Macro Financial, Government Sector, and Securities Market categories (with Dr. Alberto Ortiz and Dr. A. Martínez). 5,000 USD Prize

Research Documents and Projects

Data Science

- **Evaluating end-to-end entity linking on domain-specific knowledge bases: Learning about ancient technologies from museum collections** (with Dr. J. Bohem, Dr. T. Chaney, Dr. D. Lashkari, K. Kacem, and R. Aparecido). Working Paper. > link
- **Schooling markets in Mexico**. (with Dr. Mauricio Romero, and Paola Mejía-Doménzain). Research Project. > link
- **Early Warning System of Dropouts at Undergraduate Levels** (with ITAM CDS). Manuscript in preparation.

Economics

- **Monetary Policy and Structural Changes in Colombia, 1990-2016: A Markov Switching Approach**. Centro de Estudios de Desarrollo Económico CEDE No. 60, Universidad de los Andes, 2018 > link
- **Did the Introduction of Inflation Targeting Represent a Regime Switch of Monetary Policy in Latin America?** (with Dr. Alberto Ortiz Bolaños) In: Inflationary Dynamics, Persistence, and Prices and Wages Formation. Editorial CEMLA, 2020 > link
- **Targeting Long-term Rates in a Model with Financial Frictions and Regime Switching** (with Dr. Alberto Ortiz Bolaños and Gerardo Kattan). In: Monetary Policy and Financial Stability in Latin America and the Caribbean. > link
- **Monetary and Fiscal Policy Interactions in Mexico, 1981-2020** (with Dr. Alberto Ortiz Bolaños and Dr. A. Martínez Fritscher). Working paper. Under revision: Journal of Macroeconomics (First round) > link

Seminars and Conferences

- **2018 Workshop on Nonlinear Models in Macroeconomics and Finance for an Unstable World**. (Poster Session). Norges Bank, Oslo, Norway.
- **2017 XXII CEMLA's Annual Meeting of the Central Bank Researchers Network**. Banco de la República, Bogotá, Colombia.

References available upon request.