Francisco Emiliano Lopez Saavedra

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EDUCATION

Bachelor of Science in Computer Science and Mathematics Aug. 2020 – Dec.2023

University Of Montreal Montreal,QC

- **Scolarship:** Bourse d'exemption pour les étudiants étrangers, the highest academic merit scholarship for international students.
- **Relevant classes taken**: Fundamentals of Machine Learning(Python): A; Biostatistics A-; Theoretical Foundation of Data Science: A; Linear Regression: A; Algorithms: A ; Web Design and Development: A+

PROJECTS

Downscaling Climate Models

- **Enhanced** climate modeling accuracy at finer scales by integrating **high-resolution datasets** and **topological indicators** into large-scale simulations. Utilized advanced deep learning architectures, including **ResNet** and **U-Net**, to refine regional and community-level climate projections. (Detailed project explanation available upon request.)
- **Developed** methods to incorporate topological data (e.g., **ERA5**) into global-scale climate datasets, improving the resolution and accuracy of simulations. Applied **advanced matrix manipulation techniques** and designed **ETL pipelines** for efficient data processing and integration.
- **Collaborated** on a 4-month project with a team of **5 members** under the supervision of **Mila,Quebec AI Institute**, focusing on applying **deep learning techniques** to enhance climate model precision.

Predictive Modeling for Maternal and Infant Health

- **Conducted** a study analyzing the relationship between maternal factors and low-birth-weight infant outcomes to evaluate predictive models and gain actionable insights.
- **Explored** a range of predictor variables through **Exploratory Data Analysis (EDA)**, utilizing **statistical analysis in R**, hypothesis testing, and model selection techniques. Implemented models such as **logistic regression** and **GLMs** to assess variable significance and predictive performance.
- **Led** a team of 3 students to advance the understanding of maternal and infant health by critically examining the **ethical implications** of the study alongside the statistical findings.

Research on Model Selection for NLP

- **Collected** a corpus of tweets on current topics and performed **sentiment analysis** using **Natural Language Processing (NLP)** techniques such as **text pre-processing**, **lemmatization**, and **part-of-speech tagging**.
- **Trained** and evaluated various deep learning models, including **Logistic Regressor**, **Multilayer Perceptron (MLP)**, **CNN-RNN**, and a **Voting Ensemble**, to classify tweets by their sentiment polarity.
- **Applied** the complete **data science pipeline**, encompassing **data mining**, transformation, **model selection**, and evaluation, as part of a Mila course on data science.

SKILLS

Languages : Python, Java, R, Matlab, JavaScript, HTML, CSS, SQL, TypeScript

Tools/Frameworks :GitHub, Linux, TensorFlow, PyTorch, Numpy, Pandas, Scikit-learn, Keras, Flask, FastAPI, React.js, Node.js

Technical Skills : Data Analysis, Machine Learning, Natural Language Processing (NLP), Deep Learning, MLOps, Exploratory Data Analysis (EDA), ETL, Data Visualization, Biostatistics, Model Deployment, Statistics

Human Languages : Spanish, English, French