IRVING GÓMEZ MÉNDEZ

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https://github.com/IrvingGomez

Summary

I am a data scientist that merges the experience in applied statistics with a solid theoretical background in machine learning (random forests, neural networks, support vector machines, recommender systems, etc.) and statistics (inference, regression, Bayesian statistics, multivariate analysis, etc.), who enjoys passing from theory to development of meaningful tech products.

Portfolio

Bayesian statistics

- Notes: https://irvinggomez.github.io/BayesianStatisticsNotes/intro.html
- Codes: https://github.com/IrvingGomez/BayesianStatistics
- Hierarchical models: https://github.com/IrvingGomez/BayesianHierarchicalIncome

Machine learning

- Notes: https://irvinggomez.com/courses/machinelearning/
- Codes: https://github.com/IrvingGomez/MachineLearning

Probability

- Notes: https://https://irvinggomez.com/courses/probactuarial/

Computing Skills

Programming Languages:	Python, Julia, R
Data Visualization:	Plotly, Tableau, Shiny
Deep Learning:	TensorFlow
Big Data:	PySpark
Bayesian Analysis:	PyMC
Other Data Analysis:	SPSS, Google Analytics
Other Languages:	SQL, HTML, CSS, LaTeX

Professional Experience

CMKL University, Thailand
Assistant Professor
March 2024 - To date

- Development of competencies' syllabus for the B.Eng. in artificial intelligence and computer engineering.
- Teaching undergraduate competencies
  - Statistics: Descriptive statistics, producing data, probability distribution, inference statistics.
  - Artificial intelligence: Reinforcement learning.
  - Mathematics: Vector calculus.

Universidad Iberoamericana (Ibero-American University), Mexico
Lecturer
August 2021 - To date

- Development and improvement of actuarial subjects' syllabus.
- Teaching undergraduate subjects: Bayesian statistics, machine learning, actuarial probability.

National Electronics and Computer Technology Center (NECTEC), Thailand
Postdoctoral Researcher
March 2023 - February 2024

- Geo-statistical analysis for multivariate analysis.
- Spatial statistical inference for identification of regional clusters, and social inequality.
- Bayesian data analysis to assist policy makers.
- Data wrangling of large data sets for its further statistical analysis.

Banco del Bajío (Bajio Bank), Mexico
Data Scientist
July 2021 - February 2023

- Implementation of models in an AutoML framework.
- Improvement of statistical tools for internal fraud detection.
- Translate business and customer needs to technical language to determine the best model and solution.
- Present results and projects' progress on an executive level.
- Development of end-to-end projects to evaluate prospects' credit risk.
- Data wrangling and feature engineering from large databases, merging public and private information sources of heterogeneous data.
- Implementation and evaluation of algorithms to estimate the stability of economic sectors.
- Robust statistical inference to improve prospects' estimations.
- Geo-statistical analysis to assist decision making.

Centro de Investigación en Matemáticas (Center for Research in Mathematics, CIMAT), Mexico
Postgraduate Student in Probability and Statistics
August 2014 - June 2021

- Development and implementation of state-of-the-art random forests algorithms to handle data with missing values.
- Implementation of neural networks for recommender systems with partial information.
- Development of methodologies for detection of illegal traffic of species in America.
- Implementation of methodologies for control quality with heavily censored data.
- Statistical consulting for the automotive industry, improving its warranty management.
- Reliability analysis for the food industry, increasing preference of consumers.
- Teaching assistant in undergraduate and graduate subjects: Statistical inference, statistical models.

Academic Qualifications

Ph.D. in Probability and Statistics ..... 2017 - 2021
Centro de Investigación en Matemáticas (CIMAT), Guanajuato, Mexico

Research Stay 2020
Institut National de Recherche en Informatique et en Automatique (National Institute for Research in Digital Science and Technology, Inria), Lille, France

M.Sc. in Probability and Statistics
Centro de Investigación en Matemáticas (CIMAT), Guanajuato, Mexico ..... 2014 - 2016

B.Eng. in Mathematics ..... 2009 - 2014
Instituto Politécnico Nacional (National Polytechnique Institute, IPN), Mexico City, Mexico

Exchange Student 2012
Universidade Estadual de Campinas (State University of Campinas, UNICAMP), Campinas, Brazil
Scholarship held by the Instituto Politécnico Nacional (IPN)

David Sprott Award, 2015

Annual prize granted by the Centro de Investigación en Matemáticas (CIMAT) to the best master's exam in the area of statistics.

Publications

Gómez-Méndez, Irving and Chainarong Amornbunchornvej (2024). "Income, education, and other poverty-related variables: A journey through Bayesian hierarchical models". In: *Heliyon* 10.6.

Gómez-Méndez, Irving and Emilien Joly (2023a). "On the consistency of a random forest algorithm in the presence of missing entries". In: *Journal of Nonparametric Statistics*. DOI: 10.1080/10485252.2023.2219783.

Gómez-Méndez, Irving and Emilien Joly (2023b). "Regression with missing data, a comparison study of techniques based on random forests". In: *Journal of Statistical Computation and Simulation*. DOI: 10.1080/00949655.2022.2163646.

Selected Talks

A journey through Bayesian hierarchical models: Analyzing income and education in Thailand 04/2024
CMKL Special Talk

Introduction to probabilistic graphical models and causal reasoning 01/2024
CIMAT Statistics Seminar

An introduction to causality 01/2022
Mathematical Association of Cambodia (MAC)

Consistency of a random forest algorithm with missing entries 12/2020
Hispanohablante Seminar

Some ideas for random forests with missing values 03/2020
Inria Sequel Seminar

Some ideas for random forests with missing values 01/2020
TRIPODS workshop CIMAT-University of Arizona

Certifications

Google Analytics
Data Sets with SQL
SQL for Data Science
Statistical Analysis with SPSS

Languages

Spanish	Native
English	Fluent
Portuguese	Fluent
French	Basic
Thai	Elemental (learning)