

Andres Gonzalez

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TECHNICAL SKILLS

- **Database & Programming Languages:** R (tidyverse, rstan, tidytext), Python (pandas, matplotlib, PyTorch), SQL (MySQL), SAS, MATLAB, HTML/CSS
- **Analysis Techniques:** Regression, Bayesian Markov Chain Monte Carlo (MCMC), Random Forests, Classification (k-means, hierarchical clustering), Deep Learning, PCA/SVD, Time Series Forecasting, Text Mining, Cosine Similarity
- **Visuals & Other:** Tableau, SAS, Shiny, Quarto, R Markdown, Jupyter, Git, Microsoft Office (Excel, PowerPoint, Word, Teams), Hadoop, Spark, Big Data Certification

PROJECTS

Bayesian MCMC Analysis for Predicting Leagues Cup 2024 Soccer Matches | [Link](#)

- Implemented a Poisson-Gamma model in R and performed MCM sampling to predict the outcomes of soccer matches, analyzing historical data for 47 teams to estimate goal-scoring rates and generate probabilistic forecasts.
- Applied the Metropolis-Hastings algorithm for MCMC sampling to draw from the posterior distribution.
- Visualized results and prediction probabilities in a detailed table chart, categorizing teams by groups and positions (1st, 2nd, Round of 32, and Expected Points), enhancing strategic planning and decision-making.

Machine Learning Classification of Center-Back Player Types in Liga MX | [Link](#)

- Performed Principal Component Analysis on Liga MX center-back data via the worldfootballr package, identifying components that explained 55.58% of variance, spotlighting key metrics like tackles, interceptions, and blocks. This refined player evaluations, informed strategic formation planning, and improved defensive strategies.
- Conducted k-means and hierarchical clustering (Ward's method) to distinguish player roles into Traditional Defenders, Hybrid Playmakers, and Versatile Defenders; this approach enhanced team strategies and recruitment, optimizing player utilization by spotlighting distinct defensive abilities and informing tactical decisions.

Liga MX Player Recommendation Tool | [App](#)

- Engineered an R Shiny application for Liga MX Clausura 2024 player recommendation, utilizing PCA and cosine similarity (range: -1 to 1) to filter players with at least 150 minutes of playtime. This tool also allows selection by age group, featuring detailed player accuracy metrics and radar charts for comprehensive performance comparison.
- Implemented a sophisticated machine learning model within the app, capturing 94% of the variance in player data, enhancing evaluation accuracy, and supporting strategic team building based on age and performance metrics.

Disney Movie Success | [Link](#)

- Applied stepwise regression and AIC to develop a comprehensive predictive model for Disney's annual revenue, identifying comedy and movie count as key factors. This robust model, achieving an AIC of 431.19, impressively explains 85.6% of revenue variance, clearly demonstrating the substantial predictive capacity of these variables.
- Constructed a 95% confidence interval, predicting Disney's annual revenue to range from \$32,500M to \$55,643M, based on a 10-movie release year with two comedies, highlighting their financial influence.

EDUCATION

California State University, Long Beach

Long Beach, CA

Master of Science in Applied Statistics

Aug. 2021 – May 2024

Relevant Coursework: Statistical Inference, Applied Regression Analysis, Analysis of Variance and Design of Experiments, Data Analysis with SAS, Survey Sampling, Econometrics II, Statistical Consulting, Multivariate Analysis

California State University Polytechnic, Pomona

Pomona, CA

Bachelor of Science in Applied Mathematics

Jan. 2018 – May 2020

EXPERIENCE

Department of Mathematics and Statistics

Long Beach, CA

Front Office Assistant

Aug. 2023 – May 2024

- Served as the department's front office representative, actively engaging with students, faculty, and university administration daily, swiftly addressing service requests and upholding the department's standards and values.
- Demonstrated exceptional organizational skills by efficiently managing a variety of office tasks, such as drafting memos and flyers, handling phone queries, photocopying documents, distributing mail, and keeping public notices current.