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, Shiny, Quarto, R Markdown, Jupyter, Git, Microsoft Office (Excel, PowerPoint, Word, Teams), Docker, 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 MCMC 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.