

# Andres Gonzalez

[gonzalez.andresp@gmail.com](mailto:gonzalez.andresp@gmail.com) | [GitHub](#) | [Portfolio](#) | [LinkedIn](#)

## 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 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 (1<sup>st</sup>, 2<sup>nd</sup>, 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.