

Summary

Data Scientist and former athlete with 5+ years in sports quantitative analysis. Proven record developing advanced analytics for NBA and NHL teams. Dedicated to delivering and communicating actionable insights that drive strategic decisions.

Experience

Teamworks Intelligence (Zelus Analytics) | Basketball Data Scientist (2024-Present)

- Develop and maintain advanced value attribution metrics based on Expected Possession Value (EPV) frame by frame models for the NBA.
- Developed and implemented shot probability models for NCAA college basketball using tracking data and advanced skill projections, leading to significant improvements in strategic decision-making for both NBA and college basketball teams.

Teamworks Intelligence (Zelus Analytics) | Hockey Data Scientist (2022-2024)

- Led the creation of Expected Shots models, using high-dimensional tracking data. Used these to create state of the art metrics (threat creation, on/off puck skill, enhanced APM, line contribution and chemistry, on puck defense) and a projection system on top.
- Collaborated closely with NHL teams to enhance and deliver tailored analytics solutions, doubling client base within one year, and securing stakeholder buy-in through clear communication.
- Contributed to developing the hockey raw data processing engine by building pipelines that ingested, synchronized, interpolated, and delivered clean tracking and event data to NHL teams.

Engen Capital | Machine Learning Engineer (2021-2022)

- Developed and deployed AI-driven computer vision systems and optimized machine learning algorithms in the Risk Assessment Department, automating credit application processes and improving predictions of applicant default probabilities.

Toluca F.C. | Internship (2021-2022)

- Aided with the pinpointing of potential acquisitions from minor South American leagues by leveraging advanced soccer analytics. This acted as a first screening process for coaches and scouts, streamlining their video analysis review.

Coca Cola FEMSA | Business Intelligence Data Scientist (2020-2021)

- Enhanced zone-based sales forecasting accuracy to 85% and increased data backfill speed by using multivariate regression and time series algorithms.
- Developed statistical models evaluating Coca-Cola's marketing strategy impacts, optimized SQL databases, and automated reporting, saving 12+ hours weekly.

Covid-19 Case Estimation | Public Project (2020)

- Contributed to the development of the covidmx R package, which used a bayesian model based on contact indexes to estimate and analyze the effective reproductive number of COVID-19 cases in Mexico. This model was subsequently utilized by the Mexican Health Department (INSP) to formulate safety measures for the phased return to normalcy nationwide.

Education

PhD Sports Analytics | University of Saarland (In Progress, Proposal Stage)

- Advisor: Pascal Bauer
- Thesis: "Modeling Penalty Kicks as a Sequential Decision-Making Process"

BSc Applied Mathematics | Instituto Tecnológico Autónomo de México

- GPA: 8.8/10
- Graduated with honorable mention.
- Thesis: "[Application of Regularized Regression Methods to Forecast the NBA Playoffs.](#)"

Teaching & Public Appearances

[ITAM Sports Analytics Conference](#) | Co-Founder

- Organized and led Latin America's first sports analytics summit, securing \$300,000 in funding and sponsorship from a Liga MX club and a marketing agency. The summit featured global experts and cutting-edge topics in sports tech and data science.

[Validating Spatial Football Models](#) | Workshops for Ukraine

- Designed and led a workshop in a series supporting Ukraine, where participants learned to visualize football tracking data and identify patterns using ggplot2 and gganimate.

[World Cup Penalty Kicks, Tracked](#) | Vox Media

- Discussed insights into optimal strategies for taking and defending penalty kicks with Vox's Phil Edwards, covering shooter psychology, dominant foot, and World Cup shootout strategy.

[Introduction to R for health workers](#) | Teaching Assistant

- Served as a TA for a course teaching the Mexican National Institute of Public Health (INSP) workers R programming, focusing on automating report generation and data visualization using Quarto.

[The Perfect Penalty Kick](#) | Sport Explained

- Joined Michael Bollenbacher to discuss how we can identify the best and worst penalty shootout kicking countries using mixed-effect models to control for external variables.

Skills

- **R:** dplyr, ggplot, XGBoost, Tidymodels, glmnet, STAN, Quarto.
- **Machine Learning:** GLMs, Regression Trees, Deep Learning, NLP, kNN, Boosting, PCA/SVD, regression, time series forecasting.
- **SQL:** High querying proficiency. Schema creation and management. I have worked with BigQuery, DBT and Snowflake.
- **Cloud and automation:** GCS suite (BQ, GCS, GKE, Looker), Airflow, Docker.
- **Web Development:** Proficient in ASP.NET (C#), Shiny (R) and basic VUE (JavaScript, CSS, HTML5).
- **Other programming:** Git Version Control, Python — Pandas, NumPy, scikit-learn, Matplotlib, Seaborn, ScyPy, Pytorch, Tensorflow. C#. LaTeX and Markdown.
- **Other:** Leadership, client communication, Spanish (native speaker; bilingual translation), data visualization.