Liam Jennings

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Education

Robert Morris University, Moon Township, PA
Master of Science in Data Science | May 2025
Bachelor of Science in Statistics and Data Science, Minor in Sport Management | May 2025

Technical Skills

R, Python, SQL, Git, Microsoft Excel, Microsoft Power BI, Tableau, Data Analysis, Data Mining, Data Visualization, Machine Learning, Predictive Modeling, Statistical Modeling, Statistics and Probability

Work Experience

Sports & Entertainment Intern Jun 2025 – Present
Carbon Arc
• Analyzed business impact of events and partnerships in sports and entertainment to identify meaningful correlations using alternative data
• Developed over 60 compelling data-driven stories to highlight the strategic value of insights

Carnegie Mellon Sports Analytics Camp (CMSAC) Fellow Jun 2024 – Nov 2024
Carnegie Mellon University
• Learned 15 machine learning techniques and statistical methods such as random forests, GAMs, and regression analysis and applied to ball-flight characteristics from Statcast and other complex datasets
• Collaborated on two group research projects about WNBA Exploratory Data Analysis and bias in Stuff+

Projects

Making the Most of Your Day: Insights into Disney World Attraction Lines Apr 2025 – May 2025
• Conducted exploratory analysis and clustering on five years of Walt Disney World wait-time data (2015–19) for 14 flagship attractions, revealing that seasonal factors are the biggest factor in crowd congestion
• Compared ride efficiency and posted versus actual wait times, uncovering operational strategies like inflated wait estimates for headliner attractions

Read Between the Lines: Key Predictors of NFL Over/Under Outcomes Jan 2025 – May 2025
• Built classification models on NFL play-by-play data (2021–24) to predict over/under betting outcomes, achieving 55% test accuracy with logistic regression, surpassing the 52.4% profitability threshold
• Engineered features capturing matchup dynamics (offense vs. defense, turnover margin, ball control, etc.), revealing recent performance trends as key predictors not reflected in season-long averages

Seeing the Game: Eye Color and MLB Players' Day-Night Splits Jan 2025 – May 2025
• Analyzed the impact of eye color on MLB player performance in day vs. night outdoor games using pitch-by-pitch data from Baseball Savant and linear regression, random forest, and hierarchical models
• Determined eye color had no significant effect on day-night performance splits, with limitations including weather, sunlight, ballpark shadows, vision technology, and players' exceptional eyesight

The Wrong Stuff – CMSAC Fellow Jul 2024 – Nov 2024
• Developed visualizations depicting 4-seam fastball movement against whiff rate, xwOBA, and Stuff+ to emphasize the importance of horizontal movement over vertical movement in pitch success
• Constructed 12 XGBoost models, one per year, for simulated Fangraphs Stuff+, xwOBA, and whiff rate and identified the differences between Stuff+ and outcome variables by comparing variable importance