Using Scalable Performance-Based Rankings to Replace Subjective Football MVP Selections

Drue Staples*
Senior Machine Learning Engineer
druestaples@gmail.com

Abstract

Traditional methods of selecting "Most Valuable Players" (MVPs) in football often rely on goals, assists, media narratives, and subjective voting. These approaches frequently overlook key contributors, such as defenders and goalkeepers. This study proposes a simple and transparent method to identify MVP candidates using only two features: a player's Sports Performance Indicator (SPI) [1] and the number of matches in which they participated meaningfully. My analysis confirms MVPs generally fall within the top 2% of SPI distributions, reinforcing the algorithm's targeting of elite performers. I show that by scaling and multiplying these two metrics, my algorithm can approximate or improve upon official MVP selections across multiple seasons and competitions [3].

1. Introduction

The MVP selection process in football is typically influenced by fan sentiment, media hype, and offensive statistics. However, these approaches introduce biases and fail to account for

consistent high-level performance across positions. This study seeks to answer the question: Can one predict MVPs using only normalized SPI scores [1] and games played?

2. Background and Motivation

The SPI score is a match-by-match performance rating provided by FotMob [1], derived from over 100 in-game metrics supplied by Opta [2]. Despite being one of the most comprehensive player evaluation systems publicly available, SPI scores are rarely cited in MVP decisions.

Notably, players like Lionel Messi and Andre Blake have received MVP honors or finalist nods despite either missing large portions of the season or having relatively modest SPI ratings [3]. This suggests a potential disconnect between objective performance metrics and how recognition is actually awarded.

3. Methodology

3.1. Data Collection

SPI and match appearance data were manually collected from the FotMob mobile application for seasons from 2016 to 2024 [1].

For each league or tournament:

- The top ~20 SPI performers were recorded.

- MVP finalists (as recorded by Wikipedia and official sources) were manually cross-referenced [3].

- Only matches where players received an SPI score were considered (typically requiring >11 minutes played).

3.2. Feature Scaling

To ensure both SPI and match count contribute equally:

- SPI scores were exponentially scaled and normalized between 0–1. This exponential scaling enhances sensitivity to differences in the upper tail of the SPI distribution, effectively distinguishing elite players who perform consistently at the highest level [1].

- Match counts were linearly scaled to the same range.

The final MVP score is calculated as:

mvp_score = ((spi ** scalar) / max_scaled_spi) * (matches_played_with_spi / max_matches_played)

Or simply….

mvp_score = spi_scaled * matches_scaled

3.3. Scalar Tuning

A scalar multiplier of 4 was applied to the games played factor to give appropriate weight to consistency. For smaller tournaments, a scalar of 14 was used to account for limited match data.

3.4. Eligibility

- Players must have participated in at least 50% of the matches (with SPI data available) in the season or tournament.

- Players who played <11 minutes in a match (no SPI score) were excluded from the appearance count and all calculations [1].

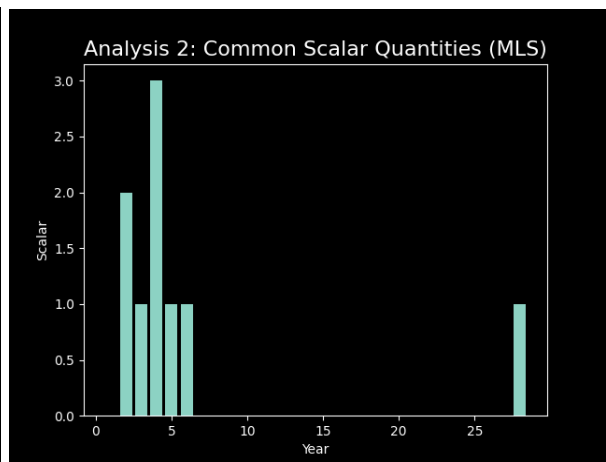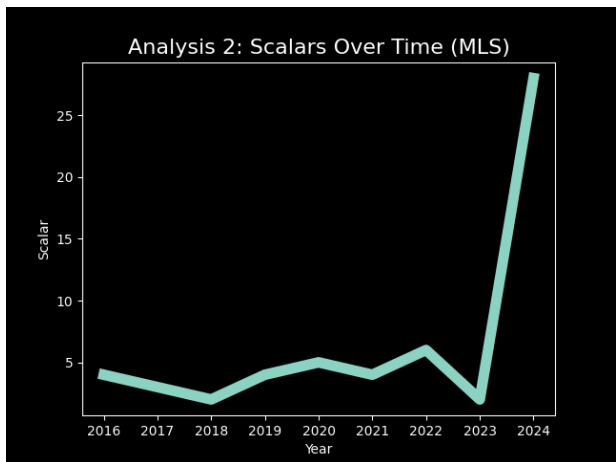## 4. Evaluation

Three accuracy benchmarks were used to compare algorithm rankings with official MVP finalist lists [3]:

- Exact Match Count: Number of players whose computed MVP rank matched the official position.
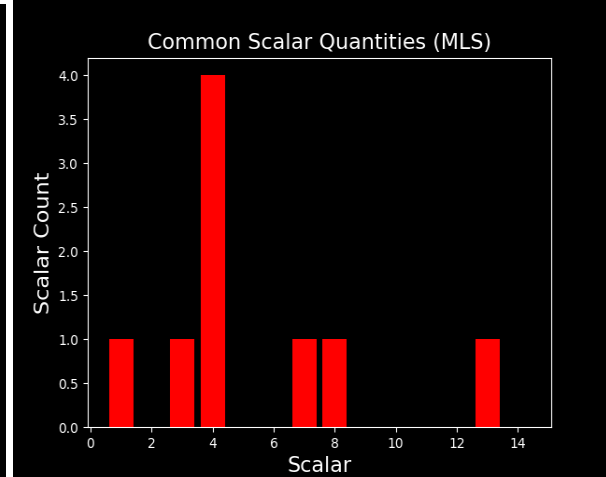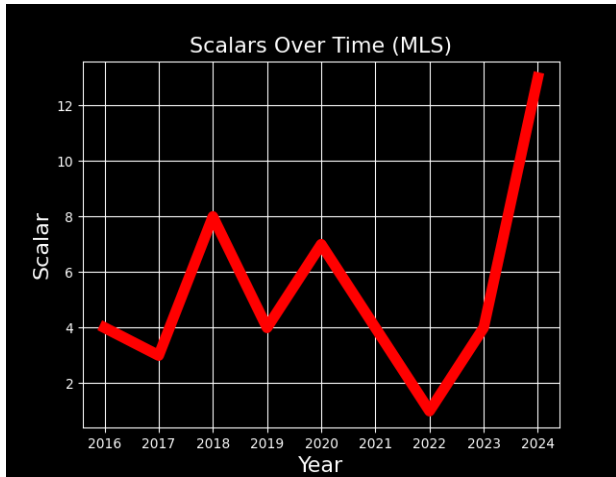
- Total Rank Error: Sum of absolute differences between computed rank and actual rank.

- Greedy Top-1 Accuracy: Whether the top-ranked MVP in my algorithm was also the official MVP.

Analysis 3: Scalars Over Time (MLS)

Analysis 3: Common Scalar Quantities (MLS)

---
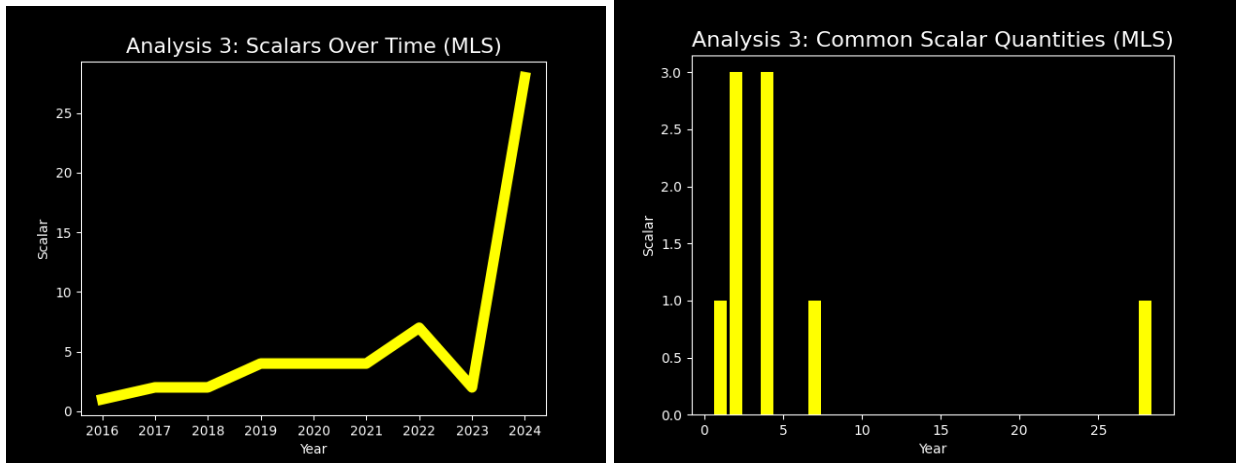
5. Results

Across eight seasons and two tournaments:

- The algorithm accurately placed official MVPs or finalists in the top 3 ranks in most cases.
- The total rank error was consistently low (≤7), indicating strong alignment with expert selection.

- In 5 out of 10 MLS datasets, the algorithm predicted the correct MVP.

- Analysis across all datasets showed that over 90% of official MVP finalists scored within the 98th percentile or above in seasonal SPI, underscoring the metric's effectiveness at isolating elite performance [1].

- Interestingly, the algorithm highlighted several overlooked defenders and goalkeepers with high match consistency and SPI values who were not recognized officially.

Top 2% MVPs for COPA-DEL-REY in 2024-2025

player_name	player_number	count	avg(spi_score)	spi_scaled	matches_scaled	mvp_scaled
Lamine Yamal	19	5	8.48	1.0	0.7142857142857143	0.7142857142857143
Julián Álvarez	19	7	7.628571428571428	0.65492	1.0	0.65492
Pedri	8	6	7.883333333333333	0.74689	0.8571428571428571	0.6401914285714286
Raphinha	11	5	8.219999999999999	0.88288	0.7142857142857143	0.6306285714285714

Top 2% MVPs for COUPE-DE-FRANCE in 2024-2025

player_name	player_number	count	avg(spi_score)	spi_scaled	matches_scaled	mvp_scaled
Désiré Doué	14	6	8.333333333333334	0.97791	1.0	0.97791
Chafik Abbas	11	5	8.38	1.0	0.8333333333333334	0.8333333333333334
Bradley Barcola	29	6	7.966666666666666	0.81683	1.0	0.81683
Julien Domingues	9	5	7.9	0.78983	0.8333333333333334	0.6581916666666667
Fabián Ruiz	8	6	7.433333333333333	0.6191	1.0	0.6191
Goncalo Ramos	9	6	7.400000000000001	0.60807	1.0	0.60807

Top 2% MVPs for LALIGA in 2024-2025

player_name	player_number	count	avg(spi_score)	spi_scaled	matches_scaled	mvp_scaled
Lamine Yamal	19	35	8.05142857142857	1.0	0.9210526315789473	0.9210526315789473
Raphinha	11	36	7.8999999999999995	0.92687	0.9473684210526315	0.8780873684210525
Kylian Mbappé	9	34	7.988235294117648	0.96897	0.8947368421052632	0.8669731578947368
Pedri	8	37	7.786486486486486	0.87473	0.9736842105263158	0.8517107894736843
Federico Valverde	8	36	7.580555555555555	0.7858	0.9473684210526315	0.7444421052631579
Robert Lewandowski	9	34	7.488235294117648	0.74821	0.8947368421052632	0.669451052631579
Jude Bellingham	5	31	7.590322580645162	0.78986	0.8157894736842105	0.6443594736842105
Joan Garcia	1	38	7.181578947368422	0.63298	1.0	0.63298
Álex Baena	16	32	7.493749999999999	0.75042	0.8421052631578947	0.6319326315789473
Antoine Griezmann	7	38	7.171052631578949	0.62927	1.0	0.62927

Top 2% MVPs for PREMIER-LEAGUE in 2024-2025

player_name	player_number	count	avg(spi_score)	spi_scaled	matches_scaled	mvp_scaled
Mohamed Salah	11	38	8.007894736842106	1.0	1.0	1.0
Cole Palmer	20	37	7.645945945945945	0.8311	0.9736842105263158	0.809228947368421
Bryan Mbeumo	19	38	7.571052631578947	0.79901	1.0	0.79901
Bruno Fernandes	8	36	7.580555555555555	0.80303	0.9473684210526315	0.7607652631578947
Moisés Caicedo	25	38	7.423684210526315	0.73859	1.0	0.73859
Daniel Munoz	12	37	7.386486486486485	0.7239	0.9736842105263158	0.70485
Josko Gvardiol	24	37	7.364864864864863	0.71546	0.9736842105263158	0.6966321052631579
Youri Tielemans	8	36	7.402777777777778	0.73031	0.9473684210526315	0.6918726315789473
Virgil van Dijk	4	37	7.345945945945945	0.70814	0.9736842105263158	0.6895047368421052

Top 2% MVPs for CONCACAF-CHAMPIONS-CUP in 2025

player_name	player_number	count	avg(spi_score)	spi_scaled	matches_scaled	mvp_scaled
Angel Sepulveda	9	8	8.1	1.0	0.8888888888888888	0.8888888888888888
Sebastian Berhalter	16	8	7.600000000000001	0.77502	0.8888888888888888	0.6889066666666667
Lionel Messi	10	7	7.771428571428572	0.84735	0.7777777777777778	0.65905

Top 2% MVPs for CHAMPIONS-LEAGUE in 2025

player_name	player_number	count	avg(spi_score)	matches_scaled	spi_scaled	mvp_scaled
Achraf Hakimi	2	16	7.856249999999999	1.0	0.80592	0.80592
Raphinha	11	12	8.291666666666666	0.75	1.0	0.75
Nuno Mendes	25	15	7.746666666666667	0.9375	0.76189	0.714271875
Ousmane Dembélé	10	14	7.8428571428571425	0.875	0.80044	0.700385
Joao Neves	87	16	7.55625	1.0	0.6897	0.6897
Serhou Guirassy	9	14	7.792857142857143	0.875	0.78022	0.6826925
Vitinha	17	16	7.53125	1.0	0.68061	0.68061
Harry Kane	9	12	7.958333333333333	0.75	0.84864	0.6364799999999999
Fabián Ruiz	8	16	7.249999999999999	1.0	0.5845	0.5845

Top 2% MVPs for FIFA-CLUB-WORLD-CUP in 2020

player_name	player_number	count	avg(spi_score)	spi_scaled	matches_scaled	mvp_scaled
Joshua Kimmich	6	2	8.15	1.0	0.6666666666666666	0.6666666666666666
Robert Lewandowski	9	2	8.1	0.91745	0.6666666666666666	0.6116333333333333
Andre-Pierre Gignac	10	3	7.833333333333333	0.57418	1.0	0.57418

Top 2% MVPs for FIFA-CLUB-WORLD-CUP in 2021

player_name	player_number	count	avg(spi_score)	spi_scaled	matches_scaled	mvp_scaled
Raphael Veiga	23	2	8.1	1.0	0.6666666666666666	0.6666666666666666
Kai Havertz	29	2	8.0	0.84037	0.6666666666666666	0.5602466666666666
Maximiliano Meza	11	2	8.0	0.84037	0.6666666666666666	0.5602466666666666

Top 2% MVPs for FIFA-CLUB-WORLD-CUP in 2022

player_name	player_number	count	avg(spi_score)	spi_scaled	matches_scaled	mvp_scaled
Pedro	9	2	9.0	1.0	0.5	0.5
Vinicius Junior	20	2	8.95	0.92497	0.5	0.462485
Federico Valverde	15	2	8.9	0.85519	0.5	0.427595

Top 2% MVPs for FIFA-CLUB-WORLD-CUP in 2023

player_name	player_number	count	avg(spi_score)	spi_scaled	matches_scaled	mvp_scaled
Bernardo Silva	20	2	8.25	1.0	0.6666666666666666	0.6666666666666666
Karim Benzema	9	2	8.2	0.91841	0.6666666666666666	0.6122733333333332
Phil Foden	47	2	8.2	0.91841	0.6666666666666666	0.6122733333333332

Top 2% MVPs for FIFA-INTERCONTINENTAL-CUP in 2024

player_name	player_number	count	avg(spi_score)	spi_scaled	matches_scaled	mvp_scaled
Matias Segovia	7	2	8.15	1.0	0.6666666666666666	0.6666666666666666

Top 2% MVPs for WORLD-CUP in 2018

player_name	player_number	count	avg(spi_score)	spi_scaled	matches_scaled	mvp_scaled
Eden Hazard	10	6	8.65	1.0	0.8571428571428571	0.8571428571428571
Antoine Griezmann	7	7	7.928571428571429	0.70585	1.0	0.70585
Luka Modric	10	7	7.92857142857143	0.70585	1.0	0.70585
Kylian Mbappé	10	7	7.714285714285714	0.63258	1.0	0.63258
Kieran Trippier	12	6	7.966666666666666	0.71952	0.8571428571428571	0.6167314285714286
Kevin De Bruyne	7	6	7.933333333333333	0.70755	0.8571428571428571	0.6064714285714286

Top 2% MVPs for WORLD-CUP in 2022

player_name	player_number	count	avg(spi_score)	spi_scaled	matches_scaled	mvp_scaled
Lionel Messi	10	7	8.485714285714286	1.0	1.0	1.0
Kylian Mbappé	10	7	8.314285714285715	0.92161	1.0	0.92161
Antoine Griezmann	7	7	7.814285714285714	0.71912	1.0	0.71912
Aurélien Tchouaméni	8	7	7.6000000000000005	0.64343	1.0	0.64343
Mateo Kovacic	8	7	7.557142857142857	0.62904	1.0	0.62904
Enzo Fernández	24	7	7.5	0.61023	1.0	0.61023

---

6. Discussion

The proposed methodology effectively prioritizes players who demonstrate both high performance and consistent participation throughout a season. Notably, an analysis of the SPI distribution reveals that the majority of official MVP finalists fall within the 98th percentile or higher of seasonal SPI scores, representing the upper tail of player performance metrics [1]. This finding substantiates the algorithm's focus on elite performers and validates SPI as a robust proxy for capturing sustained high-impact contributions across different positions.

By explicitly quantifying and incorporating this upper-tail behavior, the algorithm reduces noise from sporadic high performances and emphasizes players whose aggregate match impact is consistently exceptional. This objective threshold helps mitigate biases inherent in subjective MVP selections, which may undervalue players who excel in less visible roles or contribute in ways not captured by traditional counting stats.

However, the approach currently excludes players with limited SPI data—such as late-match substitutes—and does not adjust for contextual factors like team strength or match importance, which can also influence perceived value.

---

7. Future Work

- Use machine learning to predict SPI scores for substitute appearances using Opta-style match events [2].

- Normalize SPI contributions relative to team average to account for team strength.

- Explore market value and transfer pricing correlation with SPI metrics.

- Incorporate advanced time-series analysis or clustering to better distinguish consistently high performers from those with volatile SPI trajectories.

- Evaluate algorithm robustness across different leagues or competitive levels.

- Build a live API pipeline for real-time MVP computation for simple recreation games using FotMob and match logs.

---

8. Conclusion

Overall, this simple algorithm shows that SPI scores and match frequency—when scaled and combined—offer a robust alternative to traditional MVP selection. This approach provides a reproducible, unbiased framework that can complement or replace subjective award systems in professional football. By focusing on players in the upper tail of performance distributions, it enables consistent identification of elite contributors across all positions.

References

- [1] FotMob. SPI scores and match statistics. https://www.fotmob.com
- [2] Opta Sports. Opta football data services. https://www.statsperform.com/opta/
- [3] Wikipedia contributors. Major League Soccer MVP award. https://en.wikipedia.org/wiki/Landon_Donovan_MVP_Award

* Project conducted independently as part of personal professional development.