

Computational Evaluation of FIFA Football AI Pro as a Generative AI Framework for Intelligent Football Performance Analytics

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Abstract

FIFA's Football AI Pro, developed with Official Technology Partner Lenovo and deployed at the 2026 FIFA World Cup, is a generative artificial intelligence assistant built on a domain-specific Football Language Model and provided to all 48 competing national teams. This paper presents a computational evaluation of Football AI Pro based on publicly disclosed technical and operational information, since no independent access to the system or its training data is currently available. A structured evaluation framework is applied across six dimensions: data scale and coverage, architectural sophistication, explainability, accessibility, operational risk controls and data governance transparency. The evaluation suggests that the platform is credible mainly because it uses FIFA's large proprietary dataset. This dataset is larger and more consistent than those used in most football machine learning research. However, there is no independent evidence to confirm its explainability and governance claims. The paper concludes that Football AI Pro is a reliable and well-developed generative AI platform for sports analytics. However, its evaluation is based mainly on claims made by the company, not on independent technical testing.

Keywords: generative AI, sports analytics, FIFA, Football AI Pro, large language models, computational evaluation

1. Introduction

Generative artificial intelligence has moved from a general-purpose consumer technology into domain-specific deployments across scientific, industrial and commercial settings. Sports analytics is one such domain and the FIFA World Cup 2026 represents the largest public deployment of generative AI in international football to date. Central to this deployment is Football AI Pro, a generative assistant developed jointly by FIFA and Lenovo and built on a proprietary Football Language Model. Unlike conventional sports analytics dashboards, Football AI Pro accepts natural-language queries and returns tactical analysis in text, video and visualization form and it was made available to all competing national federations rather than sold as a commercial product.

This creates an evaluation challenge. Generative AI systems used in important organisations are usually tested using technical benchmarks, independent reviews and user feedback. None of these are currently available for Football AI Pro. This paper therefore conducts a computational evaluation grounded in the technical and operational details FIFA and Lenovo have disclosed, structured around explicit evaluation criteria rather than informal commentary. The goal is not to certify the system's performance, which cannot



be done without direct access, but to assess the plausibility and completeness of its public claims against known constraints in the sports machine learning literature.

2. Background

2.1. AI in FIFA Officiating Before Football AI Pro

FIFA started using AI in officiating before Football AI Pro was introduced. Semi-Automated Offside Technology (SAOT), introduced at the 2022 World Cup, used twelve tracking cameras and a ball-embedded sensor to track up to 29 data points per player at fifty times per second, with ball position sampled at five hundred times per second, to flag offside positions to video match officials [1]. Early studies on SAOT examined how fans perceived and trusted AI-assisted refereeing. They found that media coverage included both positive and negative views and that a lack of clear communication reduced fans' understanding of how the system worked [2]. This is a relevant precedent for Football AI Pro, since both systems rely on FIFA's internal data infrastructure and face similar questions about public trust in AI-derived outputs, even though one operates in real time on the pitch and the other operates on tactical data outside live play.

Within the VAR room itself, AI's role is deliberately bounded to evidence generation rather than final adjudication. SAOT's tracking cameras and connected-ball sensor compute the offside line automatically and flag a potential incident to the video match official, but the system is restricted to strictly positional judgments: it establishes where the ball was played and where each player's tracked body point was at that instant, and it does not attempt to resolve subjective questions such as whether a player in an offside position was interfering with play [3]. The video match official reviews the flagged incident, the automatically generated 3D reconstruction, and the available broadcast angles before confirming or overturning the on-field decision, so that final authority over every VAR-room decision remains with the human official rather than the system [3]. FIFA and its innovation staff have described this division of labor, in which AI surfaces evidence while a person retains the decision, as an intentional design choice meant to preserve the legitimacy and acceptance of officiating outcomes, and it is this same boundary that separates SAOT's real-time role in the VAR room from Football AI Pro's restriction to pre- and post-match tactical analysis entirely outside live play.

Between 2022 and 2026, FIFA extended this officiating pipeline. A body-worn referee camera, first trialed at the inaugural FIFA Club World Cup in 2025, was paired at the 2026 tournament with AI-powered video stabilization to improve the usability of first-person referee footage for broadcast [4]. Separately, FIFA introduced AI-generated three-dimensional avatars of every registered player, produced from brief pre-tournament body scans, to sharpen offside determinations in visually congested penalty-area situations and to generate clearer graphics for fans and broadcasters [4]. These developments show that FIFA has gradually expanded the use of AI from officiating to a wider range of data-driven applications, including broadcasting and team analytics.

2.2. The Lenovo Partnership and the Football AI Ecosystem

In January 2026, FIFA named Lenovo as its first Official Technology Partner, an agreement spanning the 2025 Club World Cup, the 2026 World Cup and the 2027 Women's World Cup [5]. The partnership was announced at Lenovo Tech World, held alongside CES in Las Vegas, where FIFA President Gianni Infantino and Lenovo Chairman and CEO Yuanqing Yang jointly unveiled a suite of AI products branded collectively as Football AI [5]. These products include Football AI Pro, the updated Referee View broadcast system, and the avatar system described above. Reporting on the partnership frames it as substantially more than a sponsorship

arrangement: Lenovo is described as supplying the underlying computing infrastructure, including edge servers, data-center capacity, and full-stack AI tooling, that supports FIFA's tournament operations, alongside a stated tournament-wide count of more than forty operational modules and roughly six hundred distinct data streams [6]. Football AI Pro uses multiple specialised AI agents built on Lenovo's AI platform. These agents analyse structured football data using a football-specific AI model instead of one large AI system [6].

2.3. Machine Learning in Football: The Academic Baseline

Academic research on machine learning in football provides a useful comparison point. A 2025 systematic review of 172 studies published between 2019 and 2024 identified limited availability of public datasets, driven by access and licensing restrictions, as one of the field's most persistent constraints, alongside restricted access to advanced visualization tooling and inconsistent integration of sensor and tracking devices [7]. Independent studies of match outcome prediction typically rely on a few thousand matches; one recent study combined three European leagues to reach a dataset of 5,329 matches, explicitly to compensate for the limited size of any single competition's data [8]. This contrast is central to the evaluation presented in Section 5.

This problem is not limited to match outcome prediction. Studies on machine learning in football, including injury prediction, workload monitoring and career prediction, have also found that many studies do not clearly report the quality and completeness of their data [9]. One review found that only a small number of studies provided information about the quality of the data they used [10]. A governing body that both organizes competitions and controls the resulting data pipeline is therefore structurally positioned to address a constraint that has limited academic progress in this field, which is the central premise evaluated in this paper. Researchers have started using natural-language explanations to make football AI models easier for coaches and analysts to understand [11]. This approach is like Football AI Pro's natural-language interface. Related work on computational approaches to football tactics [12] and on quantifying performance for strategic decision-making [13] further illustrates the range of machine learning applications that a data asset of FIFA's scale could plausibly support.

3. System Overview

Public disclosures describe three components of Football AI Pro's architecture. First, a Football Language Model trained exclusively on FIFA-owned and FIFA-organized data, reported to exceed 300 million data points spanning rosters, tracking data, match statistics, tactical patterns and historical competition records [6]. Second, a multi-agent orchestration layer that routes natural-language queries to specialized agents retrieving structured data, video and statistical summaries before assembling a response, a design intended to reduce hallucination relative to unconstrained generation [6]. Third, a multimodal output layer returning narrative text, video clips, statistical graphs and three-dimensional visualizations. FIFA has stated that the system is restricted to pre- and post-match use and is not used for in-match decision-making, distinguishing it from live officiating tools such as SAOT [14].

4. Comparative Analysis: Football AI Pro versus Traditional Analytics Tools

To situate Football AI Pro's design choices, Table 1 compares it against the traditional model of commercial football analytics, in which data providers license structured statistical products to clubs and federations for interpretation by human analysts.

Table 1. Comparison of traditional sports-analytics provision with Football AI Pro's publicly described model.

Dimension	Traditional Analytics Platforms	Football AI Pro
Primary interface	Dashboards, spreadsheets, structured data exports	Natural-language query interface, multilingual
Output format	Numeric tables, charts, manually tagged video	Text, video clips, graphs, 3D visualizations
Underlying model	Rule-based statistical engines with human interpretation	Domain-specific generative model with multi-agent retrieval
Access model	Commercial licensing; cost limits access for smaller federations	Provided uniformly to all 48 competing national teams
Live-match use	Varies by provider; some support in-match tagging	Restricted to pre- and post-match analysis only

The comparison shows that Football AI Pro is different mainly because of its interface and how it is provided, not because of its data. The data is similar to the tracking and event data already collected by traditional football analytics companies. Its natural-language interface makes it easier for coaches and analysts to ask questions without technical expertise. In addition, FIFA provides the platform to all 48 national teams, giving smaller and less-funded teams access to advanced analytics. However, it is still unclear whether the natural-language interface actually improves decision-making or only makes existing analysis faster and easier. More independent research is needed to answer this question.

5. Evaluation Framework and Findings

In the absence of direct system access, this evaluation applies a structured qualitative rating across six dimensions commonly used to assess applied generative AI systems: data scale and coverage, architectural sophistication, explainability, accessibility, operational risk controls and data governance transparency. Ratings are assigned based on the specificity and verifiability of public claims, not on measured performance and are intended to indicate confidence in each claim rather than a benchmark score. Table 2 summarizes the evaluation, drawing on the sources discussed in Sections 2 and 3.

Table 2. Qualitative evaluation of Football AI Pro across six dimensions, based on the verifiability of public disclosures.

Evaluation Dimension	Qualitative Rating*	Basis for Rating (from public disclosures)
Data scale and coverage	High	Training corpus reported at 300M+ data points spanning tracking, event and video data across FIFA competitions; far exceeds typical academic soccer datasets.
Architectural sophistication	Moderate-High	Multi-agent orchestration over a domain-specific language model is a reasonable design for reducing hallucination, consistent with retrieval-augmented generation practice, though undocumented in technical detail.
Explainability / verifiability	Low	No published error rates, benchmark comparisons, or independent audits are available; "hallucination-free" is a vendor claim,

Evaluation Dimension	Qualitative Rating*	Basis for Rating (from public disclosures)
		not a verified result.
Accessibility / equity	High	Uniform provision to all 48 competing federations is a documented, verifiable distribution policy, unlike commercial analytics licensing.
Operational risk controls	Moderate-High	Explicit exclusion from live in-match use limits downside risk relative to real-time officiating systems.
Data governance transparency	Low	Consent, retention, and secondary-use policies for player biometric and tracking data are not publicly detailed.

*Ratings (Low / Moderate / High) reflect the strength and verifiability of publicly available evidence supporting each dimension, not independently measured system performance.

The evaluation indicates a consistent pattern: dimensions that are structurally observable, such as data scale and distribution policy, are well supported by verifiable disclosures, while dimensions that require independent testing, such as explainability and governance, rest on unverified vendor assertions. This asymmetry is common in early-stage evaluations of proprietary generative AI systems and is not unique to Football AI Pro.

6. Discussion

The most defensible claim in FIFA and Lenovo's public materials is also the most consequential for computational evaluation: the scale of the underlying dataset. Because FIFA both organizes the competitions and controls the resulting data pipeline, it can collect tracking, event and video data with a consistency that has been difficult for academic researchers reliant on third-party providers [7]-[10]. This scale advantage plausibly explains why FIFA and Lenovo describe a large domain-specific language model and multi-agent architecture rather than the lighter statistical models, such as logistic regression or gradient boosting, that dominate the peer-reviewed literature partly because they perform acceptably on smaller datasets.

A concrete illustration of this data-scale claim occurred during the 2026 tournament itself. In the group stage, Colombia's Davinson Sánchez had a stoppage-time goal against Portugal ruled out for offside by a margin the broadcast described as the width of a boot, with the SAOT graphic built from his own pre-tournament body scan showing his boot fractionally offside at the moment the ball was played [15]. Unlike earlier semi-automated offside controversies in domestic competitions, where the generated graphic had appeared to contradict the broadcast camera footage, the scan-based avatar in this instance produced a visualization that matched what viewers saw on screen, even though the underlying decision remained contested by fans [15]. This incident is a useful, if limited, test of two claims evaluated in this paper: first, that the scale and precision of FIFA's player-specific tracking and biometric data, the same class of data underlying Football AI Pro's training corpus, can measurably improve the legibility of a close decision rather than merely its speed; and second, that FIFA's investment in this data infrastructure produced an observable operational outcome during the tournament rather than remaining solely a promotional claim. The incident does not, however, validate Football AI Pro's own outputs directly, since it concerns the SAOT officiating pipeline rather than the

tactical-analytics assistant and it should be read as supporting evidence for the underlying data infrastructure rather than as a benchmark of the generative model itself.

At the same time, the same proprietary control that enables this scale advantage limits independent verification. No third party has published error rates, adversarial testing results, or bias audits for Football AI Pro and the claim that its outputs are hallucination-free should be read as a vendor assertion pending independent confirmation. The restriction of the system to pre- and post-match use is a reasonable risk-limiting design choice, but it does not resolve open questions about data consent, retention, and downstream use of player biometric data collected for the associated avatar system.

A further consideration is institutional dependency. Uniform provision of Football AI Pro to all 48 competing federations is, on current evidence, a genuine step toward equalizing analytical access in international football [14]. However, it also means every federation's tactical preparation increasingly depends on a single vendor-controlled pipeline rather than a competitive market of independent analytics providers. This trade-off between short-term equity and long-term concentration of analytical infrastructure is not resolved by the technical design of the system itself and would benefit from explicit governance commitments from FIFA, such as published audit results or an independent oversight mechanism, beyond what has been disclosed to date.

7. Limitations

This evaluation is constrained by the absence of direct system access, benchmark data, or team-level outcome data from the 2026 tournament. All ratings in Table 1 reflect the completeness and verifiability of public disclosures rather than measured technical performance and should not be interpreted as an independent audit. A follow-up evaluation using post-tournament interviews, technical documentation, or independent testing would substantially strengthen these findings.

8. Ethical and Governance Considerations

Beyond the six evaluation dimensions in Table 2, three governance issues merit separate attention because they concern institutional structure rather than system performance. First, competitive equity and data sovereignty are in tension: uniform provision of Football AI Pro to all 48 federations is a plausible mechanism for equalizing analytical access, but it also makes every federation dependent on a single, FIFA-controlled data and modeling pipeline. Federations that might otherwise build independent analytics capability, or contract with independent providers, may instead converge on the FIFA-provided tool, concentrating analytical infrastructure within the governing body itself. Second, biometric data governance is only partially addressed in public materials: the 3D avatar system is generated from body scans of every participating player and Lenovo's materials reference privacy safeguards without detailing consent mechanisms, retention periods, or whether data collected for officiating purposes is also used within the commercial or promotional Football AI ecosystem. Third, accountability is more challenging for generative AI than for traditional statistical tools. AI-generated tactical recommendations are written in clear and convincing language, which can make them seem more reliable than they actually are. As a result, coaches may be less likely to question or examine the evidence behind the recommendation than they would with a simple statistical table. None of these issues are resolved by the technical architecture described in Section 3, and each would benefit from explicit, published governance commitments from FIFA.

9. Future Research Directions

Future research can provide a better evaluation of Football AI Pro when more data becomes available. Interviews and surveys with coaches and analysts from both well-funded and less-funded national teams can show how useful and trustworthy they find the platform. Independent testing should measure how accurate the AI is and how often it produces incorrect or misleading information. Researchers should also compare whether teams with limited access to analytics improve their performance after using Football AI Pro, while considering other factors such as player quality and coaching changes. A review of data governance should examine how player tracking and biometric data are collected, stored and used to address privacy concerns. Finally, long-term research should examine whether FIFA's approach to providing AI analytics continues, expands to club football or is replaced by commercial AI providers. This would show whether Football AI Pro represents a lasting change in football analytics or only a one-time tournament initiative.

10. Conclusion

Football AI Pro represents a credible and well-resourced application of generative AI to sports analytics, distinguished primarily by the scale and consistency of FIFA's proprietary football dataset relative to the fragmented datasets that have constrained academic research in this area. However, its evaluation to date depends almost entirely on claims from FIFA and its technology partner. Independent verification of its accuracy, bias and data governance practices remains an open task for future research and is a necessary step before Football AI Pro's contribution to competitive equity in international football can be assessed with confidence.

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Conflict of Interest

The authors declare no conflict of interest.

Data Availability Statement

No new data were created or collected for this study. The evaluation is based exclusively on publicly available documents, official reports, and published research articles cited in the References. All data supporting the findings are available through the cited sources.

AI Usage Disclosure

Artificial intelligence tools (ChatGPT) was used solely for language editing and grammar improvement. All research, analysis, interpretation, and conclusions were conducted by the author.

Author Contributions

The author conceived the study, conducted the literature review, developed the evaluation framework, performed the analysis, interpreted the findings, and wrote, reviewed, and approved the final manuscript.

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