

Introduction

FootMetricX is an interactive soccer analytics dashboard built with **Streamlit**, leveraging **SkillCorner tracking and event data** through the **Kloppy** library. It provides a comprehensive environment for exploring match dynamics, team performance, and individual player behavior using advanced football analytics and visualizations. By combining real-time data loading, robust statistical computation, and rich pitch-based graphics (radar charts, heatmaps, pass maps, pitch control), FootMetricX bridges the gap between raw tracking data and actionable tactical insights. The project is designed with reliability in mind, featuring automated tests, graceful error handling, and a modular architecture that supports scalability and future extensions.

Use case(s)

FootMetricX supports multiple analytical workflows across tactical, performance, and data exploration contexts:

- **Match analysis:** Quickly assess team performance using key metrics such as shots, passes, possession, defensive actions, and pressing intensity.
 - **Player profiling:** Analyze individual players through multidimensional radar charts, spatial heatmaps, pass maps, and advanced metrics like xG, xT, ball retention time, and forward pass rate.
 - **Tactical analysis:** Visualize pitch control and space dominance frame by frame, examine defensive shapes, compactness, and pressing zones.
 - **Comparative analysis:** Compare players side by side using standardized KPIs to support selection, scouting, or post-match reviews.
 - **Educational & research use:** Serve as a practical framework for learning football analytics, spatial analysis, and tracking-data-driven modeling using open SkillCorner data.
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Potential audience

FootMetricX is intended for a broad but specialized audience, including:

- **Football analysts and performance analysts** seeking data-driven tactical insights.
- **Coaches and technical staff** interested in visual tools for match preparation and post-game review.
- **Data scientists and sports analytics researchers** working with tracking and event data.
- **Students and educators** in sports analytics looking for a real-world, end-to-end analytical application.
- **Football enthusiasts and developers** aiming to explore advanced analytics using open data and modern Python tools.

Overall, FootMetricX serves as both a professional analytics dashboard and a strong foundation for further innovation in football data science.