DRIVEN TO BREAK
VISUALIZING FAILURES AND RELIABILITY

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Introduction

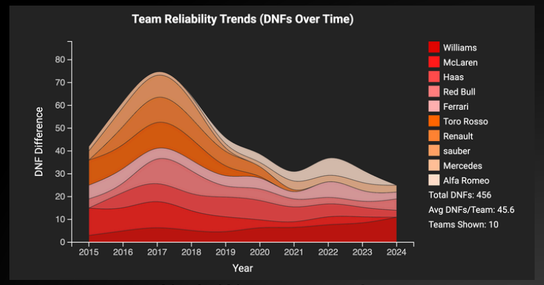
F 1 is a data-rich sport where every second and split decision counts. This project explores historical race data to uncover trends in reliability, failures, and performance-impacting factors through visual analytics.

By leveraging interactive visualizations, we aim to reveal patterns across drivers, teams, and seasons that influence race outcomes and highlight areas of risk.

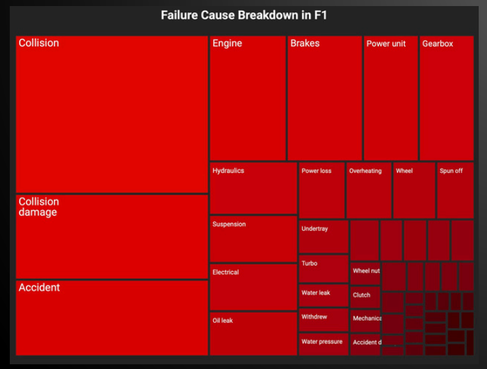
📊 Dashboard

▶️ Youtube

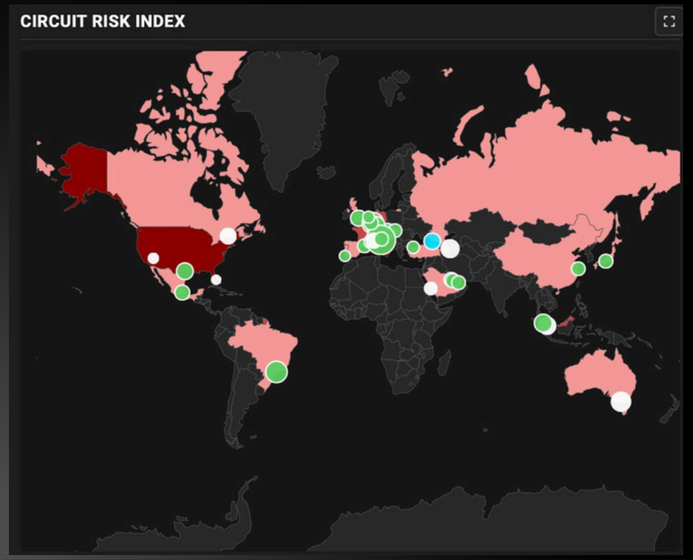
Speed thrills, reliability wins!



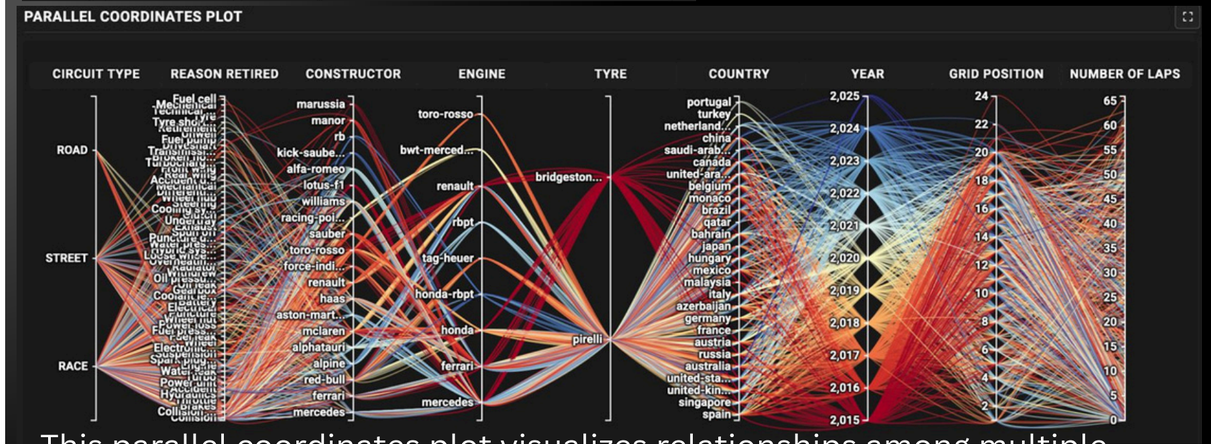
It showcases reliability trends among F1 teams by illustrating DNF differences from 2015 to 2024. It highlights fluctuations in team performances, showing improvement/setbacks in race completion rates over time.



The treemap visualizes the proportion of different failure causes, providing a clear hierarchical breakdown. Dominant issues include collisions, engine problems, alongside numerous smaller, detailed failure categories, emphasizing the diverse nature of reliability challenges in F1 racing.



The Circuit Risk Index map displays global Formula 1 race locations, color-coded by risk level based on historical incident data. Each marker represents a circuit, highlighting regions with higher tendencies for race retirements or failures. This visualization helps identify geographic patterns in circuit-related risks.



This parallel coordinates plot visualizes relationships among multiple attributes associated with Formula 1 race retirements. It connects circuit types, retirement reasons, constructors, engines, tyre suppliers, race locations (countries), years, grid positions, and number of laps completed. Lines represent individual retirements, illustrating patterns and relationships across different dimensions.