Abu Dhabi Grand Prix Lap-by-Lap Performance Comparison between McLaren Drivers – 2024

Author: Fiorella Pellerito, **AI Engineering** student at Universidad de San Andrés, Buenos Aires, Argentina.

This report presents a data-driven analysis of McLaren F1 drivers **Lando Norris** and **Oscar Piastri**, focusing on their performance during the 2024 Abu Dhabi Grand Prix. Using real telemetry and lap data, the objective is to compare their driving styles, race pace, and lap-by-lap consistency.

The comparison includes:

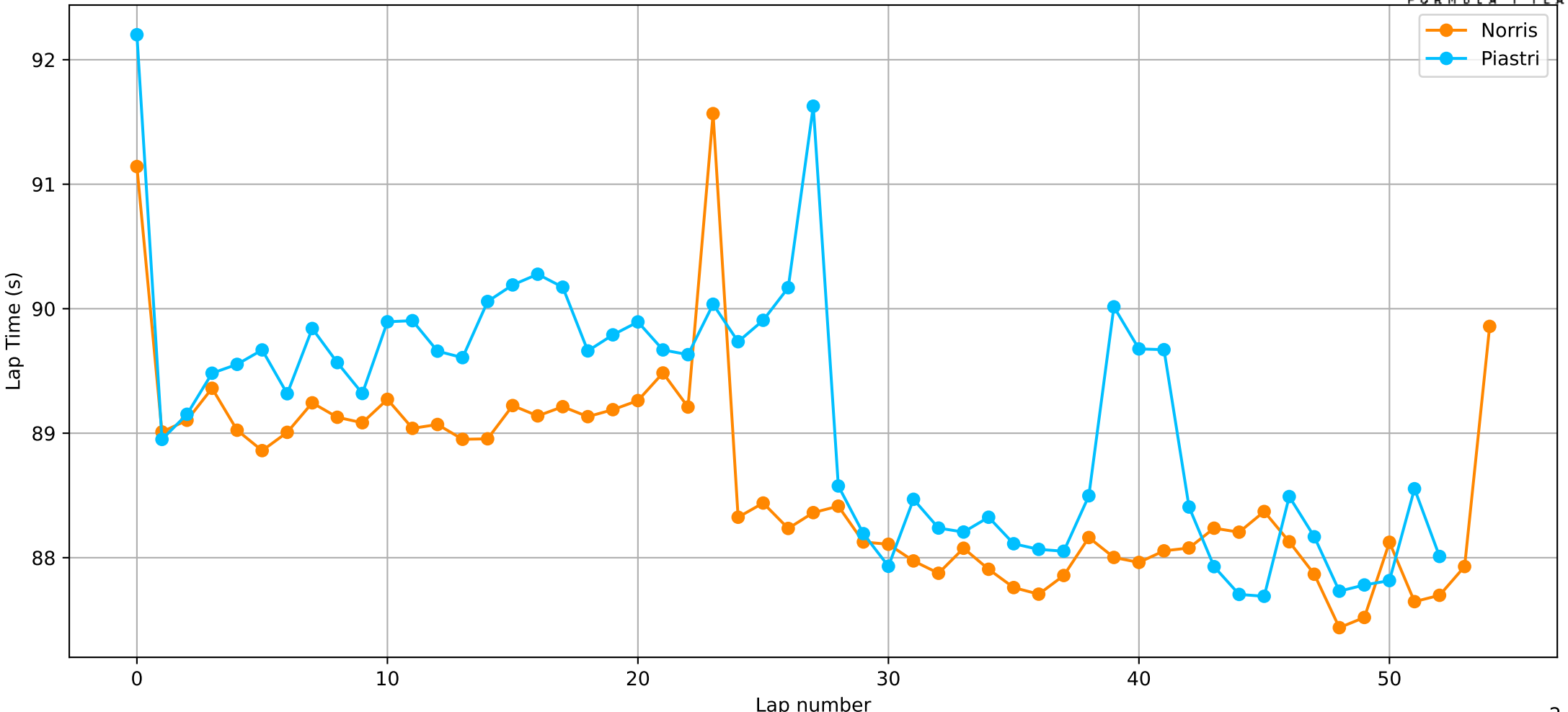
- A lap time analysis across all clean laps.
- Throttle and brake input comparisons on a selected lap (Lap 28).
- Visualizations of driver behavior through telemetry data.
- Summary statistics highlighting each driver's pace and consistency.

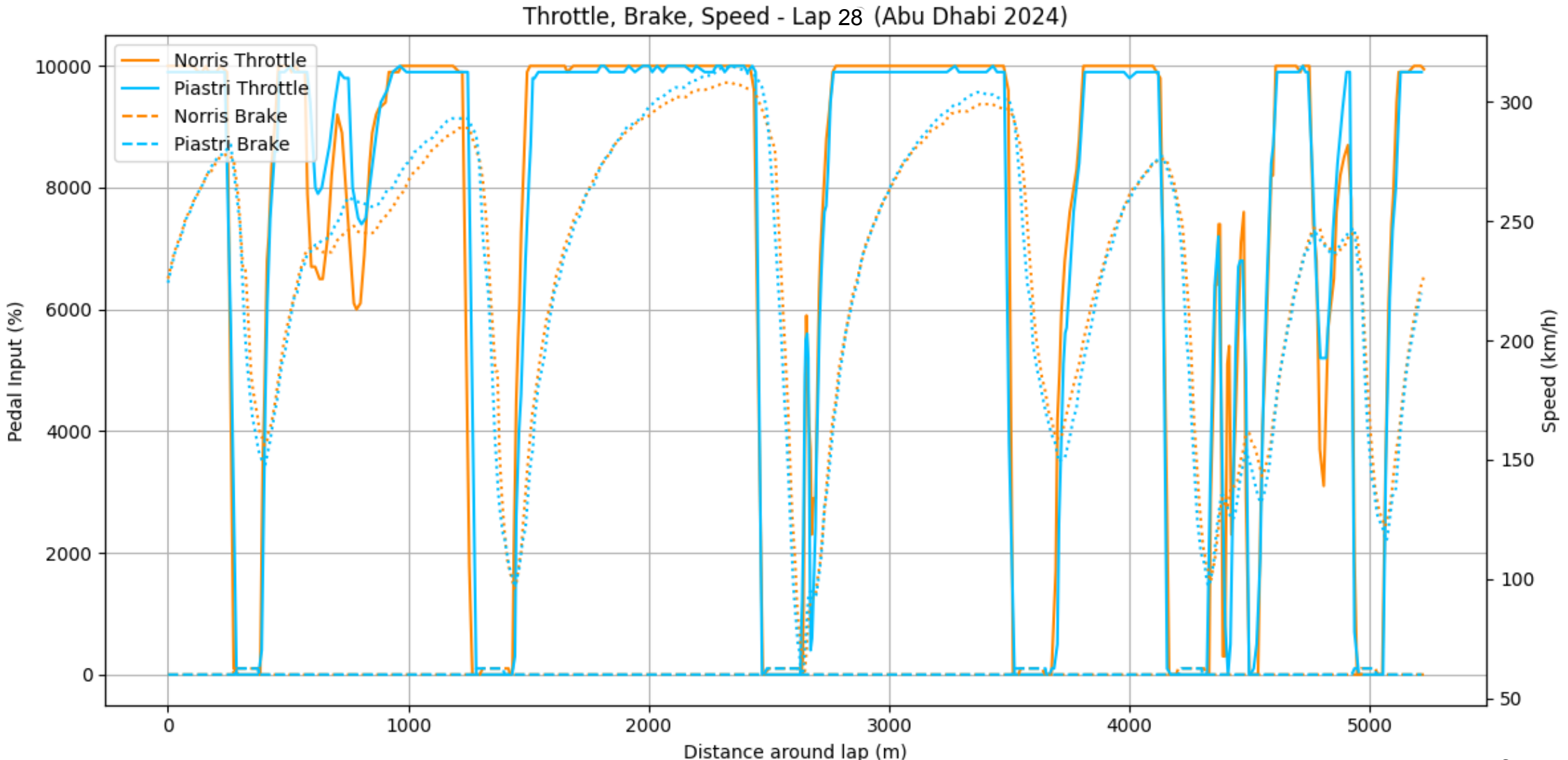
The insights gained in this report can help illustrate how each driver approached the race in terms of aggression, control, and consistency — key elements for performance engineering in Formula 1.

This project was built using Python, leveraging the **FastF1** library and data science tools including **Pandas, Scikit-Learn** (Machine Learning Model) and **Matplotlib**. It reflects a growing intersection between AI engineering, motorsport analytics, and real-world performance evaluation.

Disclaimer: This is an independent student/portfolio project and is not affiliated with, endorsed by, or sponsored by McLaren Racing, Formula 1, or any related entities. Logos and colors are used purely for educational and illustrative purposes. The McLaren logo is used for educational and illustrative purposes only.

Lando Norris vs. Oscar Piastri - Lap Time Comparison (Abu Dhabi 2024)

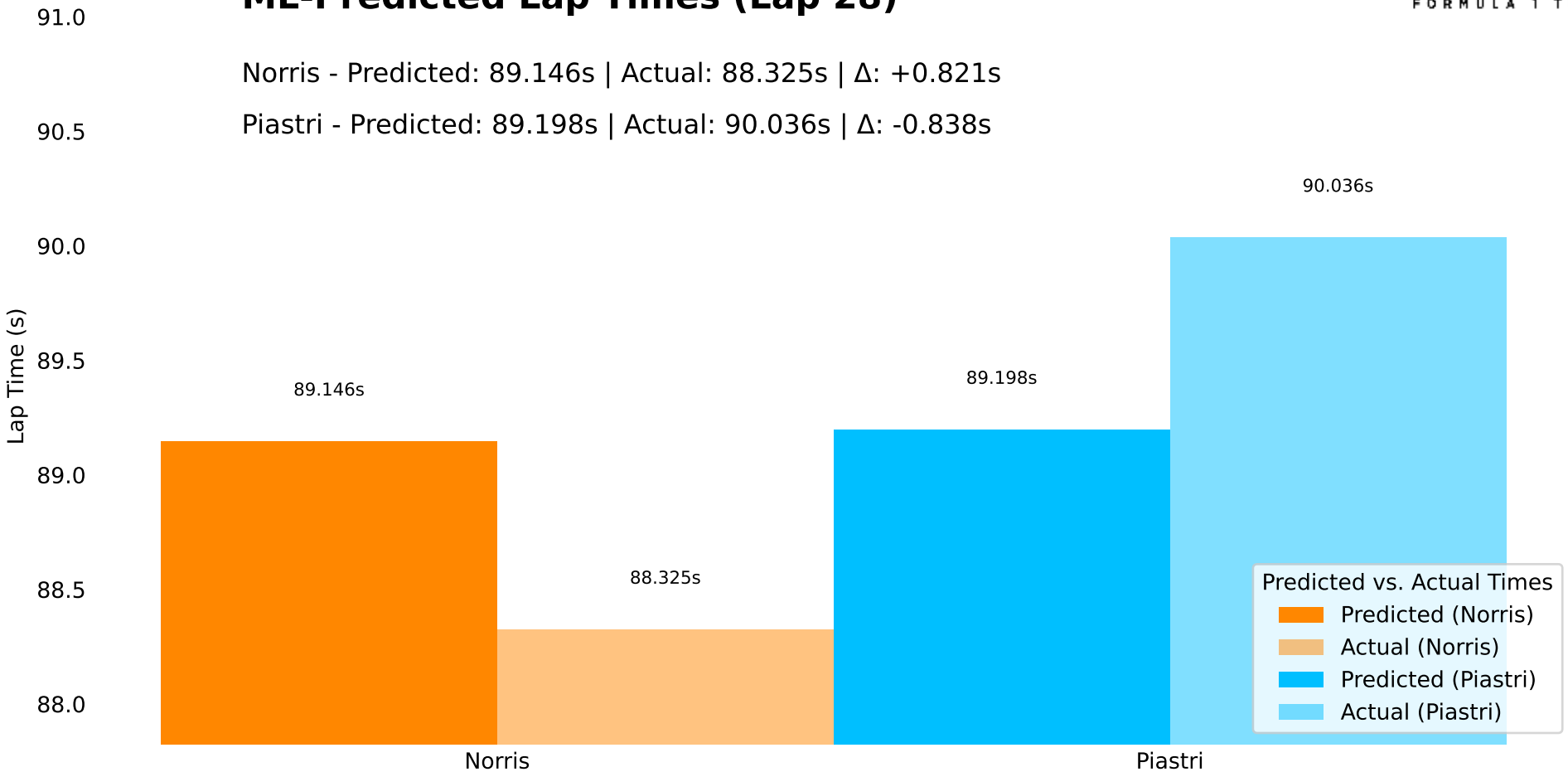



Throttle, Brake, Speed - Lap 28 (Abu Dhabi 2024)
Norris Throttle
Piastri Throttle
Norris Brake
Piastri Brake
Pedal Input (%)
Speed (km/h)
Distance around lap (m)
0
2000
4000
6000
8000
10000
50
100
150
200
250
300
0
1000
2000
3000
4000
5000

ML-Predicted Lap Times (Lap 28)

Norris - Predicted: 89.146s | Actual: 88.325s | Δ: +0.821s

Piastri - Predicted: 89.198s | Actual: 90.036s | Δ: -0.838s



Performance Summary Table - Lando Norris vs. Oscar Piastri

Driver	Avg Lap Time (s)	Consistency (std)	ML Prediction (s)	Actual (s)	Δ Prediction (s)
Norris	88.620	0.812	89.146	88.325	+0.821
Piastri	89.156	1.007	89.198	90.036	-0.838

Lap-by-Lap Performance Comparison: Lando Norris vs. Oscar Piastri - Abu Dhabi 2024

Norris Avg. lap: 88.620s

Piastri Avg. lap: 89.156s

Norris Consistency (std): 0.812s

Piastri Consistency (std): 1.007s

Lap analyzed in detail: 28