F1 Tire Degradation Predictor

Goal: Predict lap times given previous lap times over the course of a stint (assuming clean racing conditions/pure laps no overtaking or dirty air or following or DRS, and without free practice data)

Prediction: Number of laps on the tire specified into the future

Factors:

Car Specific

-Individual car behavior

-Driver discrepancies

Track Specific

-Layout

-Temperature

-Weather

-Track temperature

-Track characteristics (Like track ground material)

Race conditions

-Tire compound

-Tire age

-Current tire temperature

-Tire new or scrubbed

-Fuel load (this might just be number of laps done)

-Year of tire (changes each year)

-Current break temperature

Data to use:

-Car Specific

Team’s/Driver’s fastest lap in qualifying telemetry and time

-Include track specific data like temperature, weather, track temperature

-Tire compound

Number of points scored for the driver that season and from the previous season.

-Track Specific

Pretty straightforward (stationary track data might need to come outside of fastf1 api)

-Race conditions

Pretty straightforward