Brainstorming Stellantis 2025

* Maybe first cluster to driving styles and then predict the mean of each cluster.

Research topics

1. Factors influencing car battery usage

2. Factors influencing ETA calculations

3. Driving behaviors / styles/ pattern characteristics

Possible features/ data enhancements   
  
## Driving Dynamics (Aggregate features over trips and segments (e.g., 5-minute windows).

1. Acceleration events- Frequency or percentage of time spent with high acceleration (e.g., ≥ 2 m/s²).

2. Deceleration events- Frequency or percentage of time spent with high deceleration (e.g., ≤ −2 m/s²).

3. Jerk- rate of change of acceleration, captures abrupt transitions in acceleration.

1. Acceleration- increase in speed over fixed time intervals

2. Deacceleration- decrease in speed over fixed time intervals

3. Acceleration and Deacceleration- overall change in speed over fixed time intervals

4. Number of braking events per trip.

5. Average braking intensity (if sensor data on pedal force is available).

6. Regenerative braking usage (particularly for EVs).

4. Mean / max / stdev speed

5. Percent time at or above certain thresholds (e.g., above local speed limit).

5. Number of complete stops

6. Steering angle variance (if available)- measure abrupt lane changes or sharp turns.

7. Number of lane changes.

8. Number of unsignaled turn (if possible)

8. Smooth lane keeping score.

## Traffic / Road Environment

16. Trip distance

17. Trip duration

8. Number of traffic lights on route

9. Traffic congestion index (if external data is accessible)

10. Urban or rural classification of route

11. Number of turns

12. % difference from ideal navigation route

21. Use of built-in navigation system

13. Binary driving to industrial area

19. route pattern- is it small, to big, to small (used by transportation companies)

20. Elevation gain/loss during trip (if altitude data is available).

## Temporal & Weather

12. Day type (workday vs. weekend)

13. Hour of day

14. Rush hour vs. off-peak

14. Outside temperature

15. Precipitation

16. visibility

17. Wind speed/direction

## Vehicle / Trip

14. Car model

15. Type of car (ICE, Hybrid, EV, etc.).

16. Battery State-of-Health

18. % battery at start of trip

19. Battery type (EV, hybrid, etc.)

20. AC usage (binary or level)

21. Time spent in eco‐mode or sport‐mode (if the car has driving modes).

22. Time spent in Cruise control/ adaptive cruise control/ auto‐pilot.

23. Battery temperature.

## Driver Demographics / Context

22. Age of driver

23. Gender of driver

23. Number of passengers (from seat sensors)

18. Multimedia usage

19. Binary connected phone to car

22. relevant features used in current baseline models