

## TOP TEN

**Andrés Laverde Marín**  
Universitat Politècnica de Valencia

Category: Road

Country: Spain

Research Area 2: Sustainable Mobility of People & Goods

Idea Number: 73

# MAFALDA-O (MAkridis Fontaras And Laverde Driving Ai-Optimiser)

Private vehicles have a significant negative impact on the environment, with transport responsible for more than 20% of energy-related emissions. There is an urgent need to reduce emissions from vehicles. A significant reduction can be achieved by promoting the most efficient driving strategies. This research aims to fill the knowledge gap regarding the complicated relationship between individual driving habits and energy consumption, and to explore the role of drivers in causing emissions. To complement these current approaches, this study proposes a three-step strategy based on Machine Learning to identify and characterise drivers, quantify the impact on energy consumption, and perform transportation system optimisation. The proposed solution also includes a tool that provides real-time feedback to drivers to optimise their vehicle's energy consumption.

MAFALDA-O proposes a comprehensive tool that provides real-time feedback to drivers to optimise the energy consumption of their respective vehicles. This tool is based on classifying and categorising drivers based on their driving aggressiveness. Based on advanced machine learning techniques, we can characterise driver aggressiveness and find a correlation with energy consumption. In this way, we can determine the impact of the driver's driving style on energy consumption. The method allows classifying drivers in different clusters considering their driving behaviour and quantifies the corresponding energy efficiency for each case. In this way, we can compare the different cases and provide real-time feedback to drivers so that they can modify their speed profiles to reduce energy consumption.

