



## DATA SCIENCE USE CASE: MACHINE LEARNING FOR DRIVER BEHAVIOR PREDICTION

# Electric Vehicle Range Prediction

### Motivation

Developing a reliable and accurate range prediction algorithm is essential to reduce the so-called “range anxiety” and increase the likeliness to reach the desired final destination within the expected time.

### Why use Data Science and Artificial Intelligence?

Machine learning-based approaches prove to have a better accuracy, faster execution time and easier inclusion of many different attributes coming from various heterogeneous data sources.

### Approach

AVL applies novel machine learning techniques to predict the personalized velocity profile and HVAC consumption for a given route and time.

Based on these driver characteristics the energy consumption and remaining range are predicted.

This methodology incorporates multiple known influencing factors from external data sources (e.g., vehicle specifications, weather, traffic, street infrastructure, etc.).

### Input

- Measurement data with a variety of different ambient and driving conditions

### Output

- Predicted velocity profile and energy consumption for a given route
- Remaining SOC at destination
- Range polygon

### Benefits

- Precise prediction of the remaining range
- Energy optimal navigation
- Recommendations for an optimal charging plan
- Energy-efficient control strategy
- On-board or cloud-based integration
- Independent of specific map data providers

## FIND OUT MORE

AVL List GmbH, Hans-List-Platz 1, 8020 Graz, Austria  
 Milan Zivadinovic, Gerhard Schagerl  
 Phone: +43 316 787 8200  
 E-Mail: [dataintelligence@avl.com](mailto:dataintelligence@avl.com)

[www.avl.com](http://www.avl.com)

October 2022, Classification Public