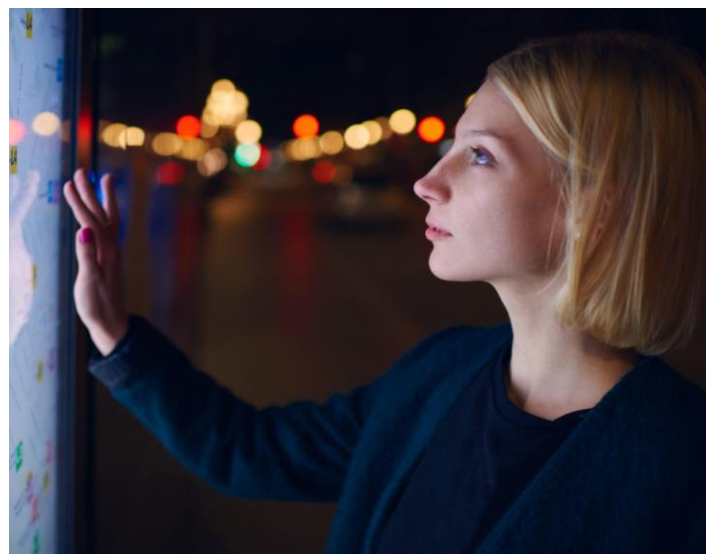# CASE STUDY

## MOVE_UK: accelerating automated driving by connected validation & big data analysis (Innovate UK, 2018-19)

## The Challenge

The MOVE_UK project aimed to contribute to the progression towards automated driving through connected systems validation and analysis of 'big data'.

# CASE STUDY

## Our Approach

A number of test vehicles, driven regularly around Greenwich, provided data from in-car sensors and cameras. TRL statisticians contributed the analysis of these data, including a 'use case' validating Traffic Sign Recognition (TSR) systems.

The aim of this work was to evaluate a car's ability to detect speed signs accurately and find contributory factors for poor detection rates. This included the use of clustering algorithms from machine learning in order to assign groups of detections and missed detections to specific road signs, and statistical mixed effect binomial regression models in order to identify which factors affected the likelihood of detections (the system detecting a road sign when one is present) and the likelihood of true detections (the system detecting the correct speed on the sign).

## The results

This work used advanced statistical techniques to test and validate the accuracy of connected vehicle systems and provide insights into important factors affecting accuracy. In addition, the analysis identified likely areas with signage visibility problems and flagged these to local authorities, so these issues could be rectified – without the need to perform costly surveys. The same approach could be applied to other vehicle systems providing a means of validating system accuracy, and potentially enabling data validation and feedback on the go.

In contrast to case studies 1 and 2 in [The best approach to unlock the value from your datasets whitepaper](#) that use only either statistics or machine learning techniques respectively, this complex project benefited from the use of both statistical and machine learning, demonstrating the advantages offered when considering the use of techniques from both areas.