# Identification of patterns, explanatory factors and prediction of irregular parking

## Challenge Provider: Project Urban Co-creation Data (UCD Lab)

The Project UCD Lab is co-financed by CEF Telecom, the EU instrument to facilitate cross-border interaction between public administrations, businesses and citizens, and the project beneficiaries are: Universidade Nova de Lisboa, Município de Lisboa, Agência para a Modernização Administrativa, I.P., NEC Portugal - Telecomunicações e Sistemas, S.A, and Barcelona Supercomputing Center - Centro Nacional de Supercomputación..

The UCD Lab project aims to support decision-making at the municipality level to provide citizens with high-quality services in the areas of micro-mobility, waste management, parking, pollution and emergency. By building analytical capabilities and services in these areas, municipalities will be able to better respond to day to day challenges.

## Context

As the population that lives, works and visits cities increases, parking capability is under pressure, namely due to unattractive or insufficient public transportation, inadequate drivers' education and insufficient regulation. On the one hand, predicting irregular parking can aid the municipality services to optimise parking inspection and dissuade possible drivers' irregular behaviour. On the other hand, it leads to fewer congestions and $CO_2$ emissions as the many times irregular parking reduces the traffic flow.

## Goals

Improve parking surveillance to dissuade irregular parking.

## Outcome

An **explainable** predictive model of irregular parking at **street level and day.**

## Available Resources

This challenge should be completed based on open data. As recommended dataset, we found the Vancouver Open parking tickets dataset.

As a reminder, all the data resources can be found here: https://bit.ly/wdl-data. You can also use any open, free, and legally available data, even for another city.

**Parking Tickets & street location**

The parking tickets from the city of Vancouver.

- This dataset contains the parking tickets from 2017-2019
- Change to the open dataset: We concatenated the field block with the field street, called HBLOCK
- Using HBLOCK you can map the location by using the street representation dataset: https://opendata.vancouver.ca/explore/dataset/public-streets/export/?q=&location=18,49.28242,-123.11627
    - Tip: Download the data in GeoJSON with WGS84 format.

Provider: Open data of the city of Vancouver

**Other Data**

The city of Vancouver has a very rich collection of open data available in English. You can find it on their portal: https://opendata.vancouver.ca/. Also, don't forget that you can use any of the other data sources provided such as the weather.

## Submissions

**Deadline:** 01 - 05 - 2021 @ 14h00 GMT + 1

Don't forget that you will need to deliver the report **using the template provided** (see below) and a 1-minute summary.

Submission template: http://bit.ly/wdl-template

## Tips

- Do state-of-the-art research. There might be already a lot of interesting things done before;
- Try to fill in the template from start to finish with a straightforward dummy solution first and iterate afterwards;
- You can use other data sources, such as weather, which can be very useful;
- If possible, don't forget to explain the predictions of your model.