Modelling Ambient Populations under Different Restriction Schemes

How have cities changed during the pandemic?

Which changes will remain as the pandemic subsides?

The COVID-19 pandemic has had a huge impact on urban mobility, leading to the two major questions above. The project partner, Leeds City Council, has a particular interest in better estimating how footfall in city-centre will vary as the pandemic-based restrictions subside.

As a solution, this project is to build on previous CDRC-funded work (i.e. the [Leeds City Council Ambient Pop under COVID-19](https://lida.leeds.ac.uk/research-projects/5037-2/) project) and create an open-source spatial-temporal machine-learning model to predict overall change in footfall, as well as the heterogeneous impacts that restrictions will have on different local areas around Leeds. It will consider the local urban configuration, external factors (like weather conditions) and, importantly, the impact of various mobility restriction measures. The model is currently being trained using footfall data from the CDRC (SmartStreetSensors) and Leeds City Council (footfall cameras) from the years before the pandemic. Lockdown restriction conditions will be incorporated thereafter.

A functional dashboard will also be developed to present maps and related visual outputs to help the policymakers easily explore different scenarios. Although based in Leeds, it is expected that the work will be generalizable to other cities that have footfall estimates and could even be applied even where footfall data do not exist.

Ultimately, we aspire to attract further funding to construct a nationwide footfall model, which would represent an attractive CDRC outcome as a great methodological advance as well as a contribution to furthering the improvements in public health, urban development etc.

This talk will mainly be an introduction to the project, a presentation of the work carried out so far led by a discussion of the next steps and plans.