# Spatio-temporal prediction of ambulance calls

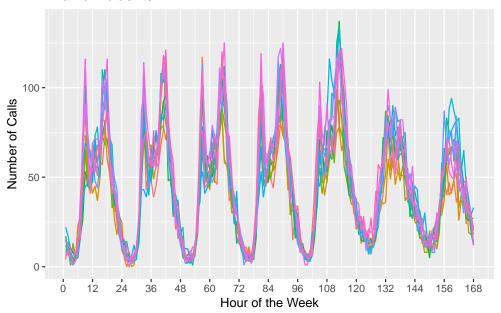
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In cooperation with the North West Ambulance Service, project supervisors are Dr Anastasios Noulas from New York University and Dr Andrew Titman from Lancaster University.

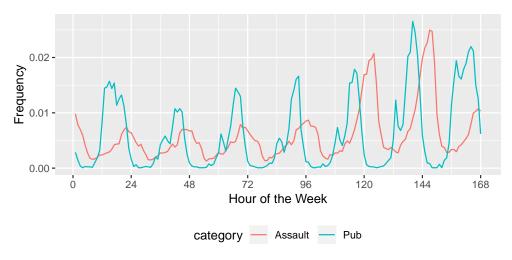
## **Exploratory Data Analysis**

• Clear weekly pattern for some types of problems

## **Traffic Incidents**

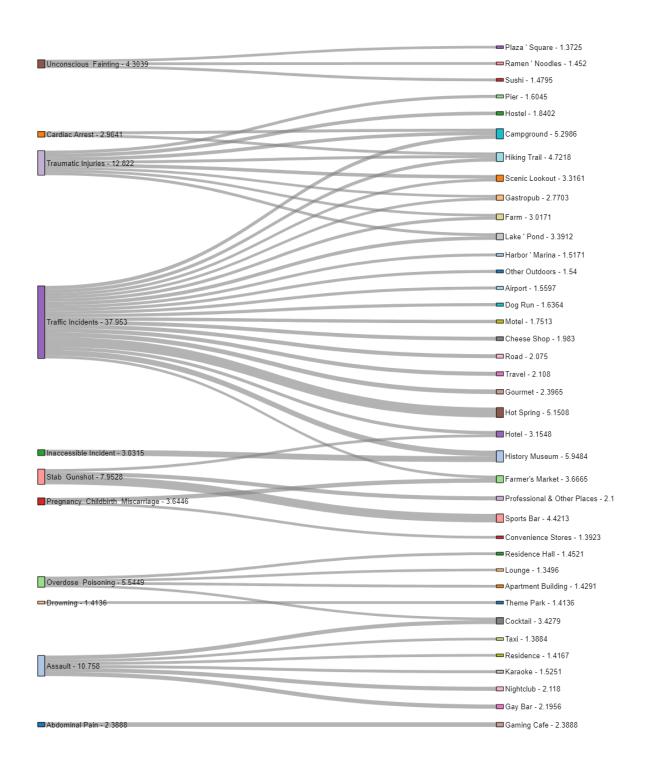


• Strong connection between human activities and ambulance calls



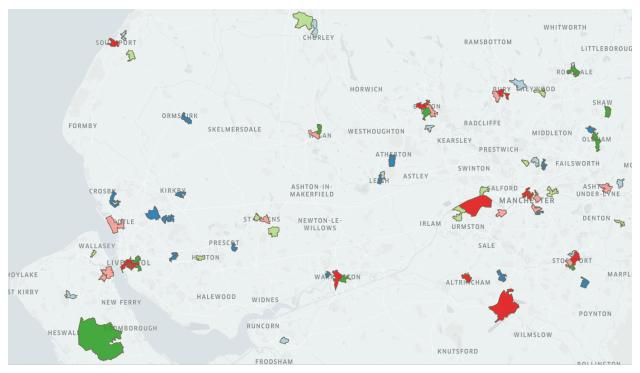
### Feature Engineering

• Defined 'attractiveness' score between types of problems and human activities



• Calculated risk score for yielding and ambulance call per area

Maps shows the risk score for selected areas only. Red is indicating high risk, green - low risk, blue- not enough information.



#### **Data Modelling**

Two models were compared - ARIMA, when the data is looked purely as a time series and logistic regression, where the outcome is whether or not there will be a call in certain area at certain hour in a certain day. Logistic regression model provided 70% AUC, however, the plot below shows it is a better fit.

