

# **MODELLING TELECOMS DATA TO UNDERSTAND HUMAN MOVEMENT PATTERNS**

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Mobile phone data provides valuable insights into the movement patterns of the UK population. These patterns can assist with the development of mathematical models to understand and mitigate the risk posed by infectious diseases. Here, we describe an approach for modelling the average number of journeys between pairs of middle super output areas at hourly intervals throughout the day. A Fourier series model is used for pairs that exhibit strong periodic behaviour, whilst a radiation model captures the structured noise of the remaining pairs. Summary statistics of the combined model compare well with those of the original dataset. Through this approach we are able to generate multiple realisations, providing a more general description of the connections between areas, as opposed to the single instance offered by the raw data.