



# Masters Dissertation Scheme

## Project form



<b>Company Name:</b>	Movement Strategies
<b>Team / Department:</b>	Movement Analytics
<b>Address:</b>	31-35 Kirby Street, London, EC1N 8TE

**Provisional title for project:**

Inferring transport mode using GPS data

**Short description of the problem that would be addressed by the project:**

A critical element of transport planning is understanding the modal split of commuters. In recent years, the widespread use of GPS-enabled devices (ie smartphones and smart devices) has resulted in an abundance of travel behaviour data that can be used to infer a user's mode of transportation. The aim of this project is to predict mode of transportation (car, bus, walk, bike, and train) based on unlabelled GPS data

**Short description of the data sources that would be used in the project, and how they would be used**

A national GPS dataset (derived from various smart phones apps) in its raw format will be provided. For each event produced by a unique device id, the time at which the event was recorded as well as the geographical coordinates and horizontal accuracy of the record are present. Additional data sources can be used, such as OSM road or rail network to improve the accuracy of the model

**Would any work need to be carried out on site at the company, with the exception of supervisory meetings?**

Mentoring will be tailored to suit the individual student's preferences. Attendance at the office can range from a full-time desk during the summer in our office to bi-weekly catch-ups with mentors (subject to current government guidance)

**Any issues of data confidentiality and IPR that would need to be resolved**

Where relevant, all personal data will be anonymised and aggregated to a level which prevents identification of individuals. Data will be stored in a secure cloud-based platform. Movement Strategies have previous experience of supporting Masters Students through the CDRC process and understand the relevant ethical procedures that students may face. Movement Strategies actively encourages the publication of Masters research subject to the relevant data sharing and privacy policies

**Essential skills**

Python or R are essential

**Desirable skills**

Experience of using SQL and GIS tools

**Preferred degree programmes (if any)**

A programme with a primarily statistical/data science focus

**Preferred selection method**

Either face to face or Skype interview

**Support and training offered by the company**

A full range of support and training is available from Movement Strategies, starting from a 1 hour meeting every 2 weeks, through to a full-time desk being provided at our London offices, with immediate access to a dedicated supervisor and other staff. This meeting will either be conducted in person or online, depending on the health restrictions in place

**Financial assistance offered by the company**

The organisation will pay the honorarium of £500; travel or other expenses incurred will be reimbursed as appropriate

**Any other comments**

Movement Strategies has a strong track record of offering project placements to students over the past 5 years with several of our students winning prizes in the CDRC competition. Successful students will be supported with individual mentors who are subject matter experts, most of whom have previously taken part in the CDRC themselves and have a good understanding of the process and guidance required

For details on how to apply, please visit:

[www.cdrc.ac.uk/education-and-training/masters-dissertation-scheme](http://www.cdrc.ac.uk/education-and-training/masters-dissertation-scheme)