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Department	School of Engineering and the Built Environment
Supervisors	Achille Fonzone, Greg Fountas
Funding Status	Funded PhD Project (Worldwide)
Application Deadline	14/04/2022
Project Title	Big data for transport planning and operation

PROJECT DESCRIPTION

This is an exciting and challenging moment for transport research. The uncertainties about the permanence of the lifestyle changes fostered by COVID-19 (teleworking, e-shopping) and consequently about the future of transport demand (where will people choose to live? How much and how will they need to travel to work and to participate in social life); the increased awareness that physical mobility is just one of the tools to provide accessibility; the availability of new transport systems (electric micro-mobility such e-scooters, automated and connected vehicles, drones and flying cars). All this has made or will soon make outdated what we know about planning and operating transport.

But if the problems are arduous, the tools to solve them are more powerful than ever. We can rely on data that were not available in the past: information stored by the cards we use to ride public transport or a shared bike; travel searches and choices collected automatically by apps running on our mobile phones; busyness of places and transport means made available by companies like Google; data from sensors that the deployment of 5G will make increasingly ubiquitous and accurate. And we can use the plethora of tools supplied by machine learning and artificial intelligence to make the most of such data.

We are looking for an enthusiast and skilled PhD student keen on using big data together with machine learning and/or artificial intelligence to understand and/or to predict short- or long-term transport demand. You are invited to contact the prospective supervisory team to discuss your ideas.

You will join an experienced research team of researchers that enjoy what they do and aim to improve the life of people around them with their work. You will be part of an ambitious University, rapidly climbing the international rankings, and enjoy the vibrancy of a world renowned city like Edinburgh. You will develop skills that can be useful for your career, within or outside academia.

Academic qualifications

A first degree (at least a 2.1) ideally in Civil Engineering or Transport or Computer science with a good fundamental knowledge of data analysis.

English language requirement

IELTS score must be at least 6.5 (with not less than 6.0 in each of the four components). Other, equivalent qualifications will be accepted. [Full details of the University's policy](#) are available online.

Essential attributes:

- Experience of fundamental transport and big data
- Competent in machine learning and artificial intelligence
- Knowledge of urban and regional planning, decision making theories
- Good written and oral communication skills
- Strong motivation, with evidence of independent research skills relevant to the project
- Good time management

Desirable attributes:

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Experience with developing API to download data from the Internet	
Indicative Bibliography	TAPping into a changing world – Triple Access Planning for Uncertain Futures https://doi.org/10.1109/TITS.2018.2815678 https://doi.org/10.1080/01441647.2019.1616849 https://doi.org/10.1016/j.bdr.2019.03.001 https://doi.org/10.3390/fi11040094
Funding notes	This project may be funded by a scholarship of the School of Engineering and Built and Environment. Please see School-funded PhD scholarships - RESEARCH AND INNOVATION (napier.ac.uk) for information on the scholarships and how to apply for them.
Enquiries	For informal enquiries about this PhD project, please contact Click here to enter text.
Web page	https://www.napier.ac.uk/research-and-innovation/research-degrees/application-process

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