Newcastle University PhD Studentship award

Title
Traffic diagnosis and prediction based on spatial-temporal big data using deep learning analysis

Value of award
100% of International tuition fees paid

Number of awards
1

Start date and duration
September 2019 for 4 years

Application closing date
8th February 2019

Overview
Over half of the world’s population live in cities, a figure that is projected to increase to 60% by 2030. Research is increasingly focusing on making cities smart, resilient and adaptive to sustainable development. One key element is intelligent transportation that is able to adapt the traffic proactively via intelligent traffic monitoring and control. Newcastle University’s Urban Observatory (UO) gathers huge amounts of data in urban environment from weather conditions, flooding, to air pollution, and traffic flows with a goal that informed decisions can be made as we develop our cities for the future.

Machine learning techniques can be applied to various data sources to learn effective representation for aggregation. Nowadays, deep learning, which can perform end-to-end learning, can be directly applied to raw signals (e.g., video, text, IoT sensing modalities). This characteristic of deep learning makes it feasible to extract potentially complimentary knowledge from various sources. All the information can be concatenated into a joint time-series data for further prediction tasks.

This project will investigate an urban traffic real time analysis system using big data and deep learning for decision support to manage traffic flows. This involves a start-to-end analytical and computational framework that rigorously evaluates and integrates real-time data and information from different resources, e.g. weather forecast, CCTV, social media.

Sponsor
Faculty of Science Agriculture and Engineering and Chinese Scholarship Council (CSC)

Name of supervisor(s)
Dr Wen Xiao, Dr Yu Guan, Dr Phil James

Eligibility Criteria
You must be a citizen and permanent resident of the People’s Republic of China at the time of application.
Applicants should hold a degree in a related subject such as Computer Science, Geographical Information Science / Geomatics, Environmental Science, Engineering. Experience of programming in Computer Vision or Image Processing and its application to environmental and/or spatial data is highly desirable.

How to apply
You must apply through the University’s online postgraduate application system. Apply here. To do this please ‘Create a new account’. All relevant fields marked with a red asterisk must to be completed.

The following information will help us to process your application. You will need to:
• Insert the programme code 8040F in the programme of study section
• Select ‘PhD in Civil Engineering (full time) – Geomatics’ as the programme of study
• Insert the studentship code CSC1810 in the studentship/partnership reference field
• Attach a covering letter and CV. The covering letter must state the title of the studentship, quote reference code CSC1810 and state how your interests and experience relate to the project
• Attach degree transcripts and certificates and, if English is not your first language, a copy of your English language qualifications

Contact
For further information, please contact Dr Wen Xiao (wen.xiao@ncl.ac.uk)