Do you know where you're going? Your smart phone soon will

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Your smart phone may soon be able to predict where you are going, according to research by University of Birmingham computer scientists.

The researchers have devised an algorithm which is able to capture your mobility patterns and those of your social group and can predict, down to 20 metres, where you might be 24 hours later.

This new data could provide invaluable information to advertisers and retailers, as they will have the ability to recommend shops and restaurants in the location you are headed.

Dr. Mirco Musolesi, from the University of Birmingham's School of Computer Science, who led the study, said: *'Information extracted from the usage of a mobile phone is an intriguing source of data about people behaviour. We have shown that the accuracy of the prediction of an individual's future locations could be improved if his or her previous movement and the mobility information of his or her social group are taken into account.'*

Dr Manlio De Domenico, who took part in the research, said, *'In a world dominated by social networks and always-connected mobile devices, the potential applications of our study are many, in particular for marketing, advertising, and personalised services. If a system is able to predict with reasonable accuracy where the user is directed, it could provide geo-localised and personalised recommendations based on his or her future movement. For example, a user might receive meal offers related to restaurants in the area they are moving towards.'*

Mr. Antonio Lima, a Ph.D. student of the School of Computer Science involved in the study, said: *'In order to predict movements of people accurately, this study leverages their synchronicity and correlation. For example, friends John and Emily usually have lunch together either at a Chinese restaurant close to John's office. Sometimes, though, they like to go a little farther to a nice Italian restaurant. When Emily is heading to the Italian place, this algorithm uses this information to predict that John is very likely to go there soon as well.'*

The research has won the Nokia Mobile Data Open Challenge. The task was in the area of 'big data mining' requiring participants to analyse a large dataset containing various information about 200 mobile users over more than a year.

The researchers now hope to build a platform implementing the algorithm for supporting the development of third-party mobile apps for personalised information retrieval and marketing. Another potential application area is law enforcement, for example, the prediction of the future location of criminal events.

The authors of the study will continue to work on the underlying questions related to the modelling and understanding of human behaviour such as 'why do we move in the geographic space in the way we do?' The availability of these data sets and the development of these techniques might help in answering this question.

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Notes to Editors

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