

Invitation à la soutenance publique de thèse

Pour l'obtention du grade de Docteur en Sciences de l'Ingénieur

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Master ingénieur civil en mathématiques appliquées

**Big Data for Modeling Human Behavior:
Applications using mobile phone data**

In the last few years, the rise of big data has rapidly revolutionized how people communicate, move or organize events, and even how people think and make decisions. With the rise of the production of these big data, along with the increase of computing power and storage, companies, governments and universities altogether are facing a new challenge, that is, finding efficient methods to leverage those large databases and gain useful insights from the information that can be extracted.

Previous research has shown that mobile phone datasets provide a good lens through which social behavior can be observed, revealing communities, human mobility, and their evolution with time. In this thesis, we address several questions related to the use of big data, and in particular of mobile phone datasets, to extract useful insights to observe and understand human behavior. Firstly, we address methodological concerns regarding the sampling bias existing in those large datasets that may have effects on the results of the analyses. Secondly, we address the topic of spreading processes, as these datasets can also be used to model and predict the spreading of infectious diseases or information among a population. Finally, we take a more practical approach and show that mobile phone data can be used for humanitarian purposes, by using them as a proxy for food security indicators in Africa.

**Mardi 15 septembre 2015 à
16h00**

Auditoire BARB 92
Place Sainte Barbe
1348 Louvain-la-Neuve



Membres du jury :

Prof. Vincent Blondel (UCL), promoteur
Prof. Jean-Charles Delvenne (UCL), promoteur
Prof. Raphaël Jungers (UCL), président
Prof. François Fouss (UCL), secrétaire
Mr Robert Kirkpatrick (UN Global Pulse, New York, United States)
Dr Gautier Krings (Real Impact Analytics, Belgique)