# Measuring Human Behaviour to Inform e-Coaching Actions

Oresti Banos
University of Granada
Granada (Spain)
oresti@ugr.es

## ABSTRACT

Having a clear understanding of people's behaviour is essential to characterise patient progress, make treatment decisions and elicit effective and relevant coaching actions [1]. Hence, a great deal of research has been devoted in recent years to the automatic sensing and analysis of human behaviour.

Sensing options are currently unparalleled due to the number of smart, ubiquitous sensor systems developed and deployed globally. Instrumented devices such as smartphones or wearables enable unobtrusive observation and detection of a wide variety of behaviours as we go about our physical and virtual interactions with the world [2,3].

The vast amount of data generated by such sensing infrastructures can be then analysed by powerful machine-learning algorithms, which map the raw data into predictive trajectories of behaviour [4]. The processed data is combined with computerised behaviour change frameworks and domain knowledge to dynamically generate tailored recommendations and guidelines through advanced reasoning.

This talk explores the recent advances in the automatic sensing and analysis of human behaviour to inform e-coaching actions. The H2020 research and innovation project "Council of Coaches" [5] is particularly used to illustrate the main concepts underpinning this novel area as well as to provide some guidelines and directions for the development of human behaviour measurement technologies to support the future generation of e-coaching systems.

## CCS Concepts/ACM Classifiers

• Human-centered computing ~ Ubiquitous and Mobile Computing

## Author Keywords

E-coaching; smart sensing; human behaviour.

## BIOGRAPHY



Oresti Banos is a Tenured Professor of Computational Behaviour Modelling at the University of Granada (Spain). Prior to arriving in Granada, he worked at the University of Twente (Netherlands) and Kyung Hee University (South Korea). He has also been a Visiting Scholar at the Technical University of Eindhoven (Netherlands), the Swiss Federal Institute of Technology Zurich (Switzerland), and the University of Alabama (USA).
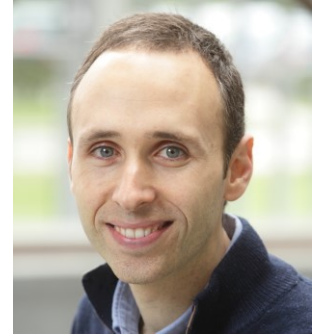
Dr Banos' research works on the intersection of wearable, ubiquitous, and mobile computing with data mining and artificial intelligence for digital health applications. His interests span from human-aware computing, behaviour and context modelling to intelligent coaching systems and smart pervasive sensing.

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