

Department of Electrical and Computer Engineering

Title: « Indirect measurement of respiration rate from wireless ECG and PPG signals: comparison and fusion »

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Room XOD02 – 117, New Campus – University of Cyprus

Abstract:

As the healthcare community moves towards 24-hour continuous monitoring for a wider patient population, the provision of accurate and robust vital sign measurements in a non-intrusive and non-invasive way, via wearable sensors, becomes of primary importance. Respiration Rate (RR) is currently being measured using techniques which are unsuitable for ambulatory monitoring via wearable sensors. In this talk, a new method for extracting RR from Electrocardiogram (ECG) and Photoplethysmograph (PPG) obtained via wearable sensors will be presented which efficiently deals with the motion artefact present in the data. A comparison between ECG- and PPG-based estimates will be presented, before investigating the benefit of measuring both signals simultaneously.

Biography:

Christina Orphanidou received an MEng degree from Imperial College, London, in 2000 and MSc and DPhil degrees from the University of Oxford, UK, in 2002 and 2008, respectively. During the period 2005-2008 she worked as a research associate in the Phonetics Laboratory, University of Oxford. She then moved to the Institute of Biomedical Engineering, University of Oxford where she was the Senior Research Associate in the “Hospital of the Future” project, investigating real-time monitoring of ambulatory patients using wearable sensors. During her time in Oxford she was heavily involved in ICT projects on continuous patient monitoring, e-health, and medical decision support. At the same time, she managed large-scale clinical trials investigating the use of ICT in healthcare at the NHS Foundation Trust. In 2013 she founded Oxygen Research Ltd, a Biomedical Signal Processing and e-health consultancy firm, conducting R&D work in Cyprus and overseas. Since 2014, she has been working in the Department of Electrical and Computer Engineering, University of Cyprus, where she currently holds a Visiting Assistant Professor post.