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The University of Nottingham
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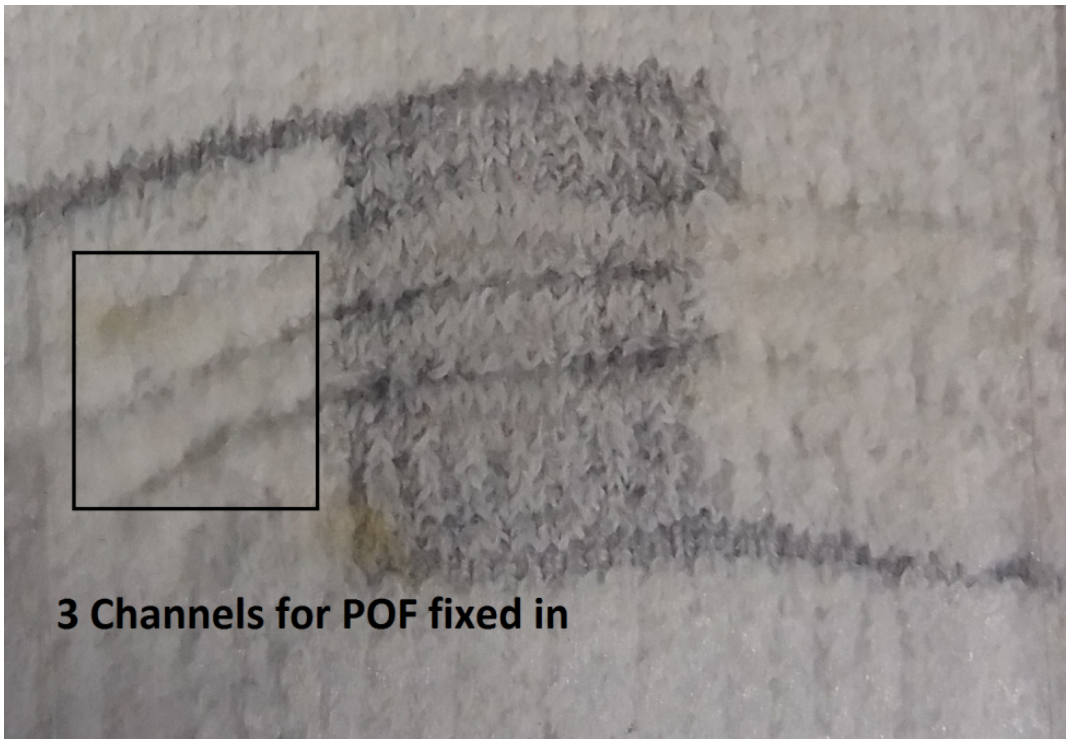
Optics and Photonics Group
Lunchtime Seminar

"A fibre optics textile based sensor for physiological monitoring"

Chong Liu



12:00pm Thursday 11th May 2017
203 Tower Building
All Welcome

Abstract

http://optics.nottingham.ac.uk/wiki/Talks_2017

"A fibre optics textile based sensor for physiological monitoring"

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Photoplethysmograph (PPG) is an optically obtained plethysmogram (non-invasive method). It is widely used in healthcare, sport and medical aspects. The PPG signal can be used to measure blood volume changes in arteries as well as in capillaries. PPG signals can be directly used to count the heart beat rate whilst they can also be used to measure other body factors as the blood oxygen saturation and the capillary refill time. Traditional pulse oximeter design is based on using transmission PPG signals which makes the pulse oximeter sensors are required to put on thin body parts like fingers and earlobes. This is not convenient and comfortable for the long term measurement. The main goal of this project is to design a photonic textile based pulse oximeter. This photonic textile integrates three plastic optical fibres to deliver/collect optical signals. The sensor design is based on measuring subjects' physiological factors by using reflected PPG signals. Thus, it is theoretically available to put the sensor on every body part of the subject. By using this design, it is available to make the pulse oximeter wearable which means it is easier and more comfortable for people to take the long term PPG/SpO2/CRT tests in the daily life.