



E-Textiles for Healthcare

Tuesday 16th January 2023, 09.30-16.30

Hartley Suite, Building 38, University of Southampton

9.30	Registration & Coffee
9.55	Welcome and Introduction – Prof. Steve Beeby (University of Southampton)
10.00	<p>Clinical Needs in Orthopaedic Surgery: E-Textiles and More - Prof. Philip Chapman-Sheath (University Hospital Southampton)</p> <p>This talk will discuss the requirements for patient home monitoring, pre & post operation functional monitoring and technologies such as e-sniffer for infection and ACL pivot-shift accelerometer. Mr Philip Chapman-Sheath is a Specialist Consultant Knee Surgeon based at University Hospital Southampton NHS Foundation Trust since 2003. He is also a Visiting Professor within the SEMS group at the University of Southampton.</p>
10.20	<p>Using Wearables for Clinical Decision Making - Dr Peter Charlton (University of Cambridge)</p> <p>Wearables such as smartwatches provide opportunity to monitor health and detect diseases unobtrusively in daily life. However, much work is required to establish pathways to use consumer wearables for clinical decision making. In this talk, Peter Charlton will present an introduction to consumer wearables, focusing on the capabilities provided by photoplethysmography and electrocardiography sensors. He will then summarise potential clinical applications, highlighting contributions from his research towards making these applications a reality. Finally, he will share some areas for consideration to ensure consumer wearables can be used robustly for clinical decision making.</p>
10.40	<p>So you have the data. Now what?– Prof. Age Chapman (University of Southampton)</p> <p>We are building devices, sensors and systems that create and capture more data. What can and should we do with it? This talk explores the current state of play with respect to using data for health. It also expands into the research underway around how best to use (or not use) personal-health-adjacent data.</p>
11.00	<p>Translating Research into a Commercial Medical Product: Bridging the Product Development Gap – Tim Bubb (IMed Consultancy Ltd)</p>



	<p>In this session we will be discussing how research can transition from a proven scientific concept into a commercially applied medical technology. The session will focus on medical device design, development and product certification steps required to allow a new or innovative technology to be sold, commercialised, and start to benefit patients. The session is aimed at providing a grounding on the necessary and recommended considerations when starting to develop a new medical product within the highly regulated, safety conscious medical technology sector.</p>
11.20	Panel Discussion – Q&A and General Discussion (coffee break)
11.30	<p>Facilitated Workshop Session:</p> <ol style="list-style-type: none"> 1. What parameters could wearables be used to monitor or what therapies could be applied using wearables? For each of these, how? 2. What do people want to see from the data collected? 3. What are the drawbacks associated with existing wearables?
12.45	Lunch and Networking
2.00	<p>Prof. Ian Craddock (University of Bristol) – Wearables in the Home</p> <p>Long term health conditions such as dementia, cardiovascular disease, Parkinson's disease, depression and diabetes, have become extremely prevalent in modern society. People living with those conditions are very likely to spend a significant proportion of their lives at home. In this context it is immediately clear that wearable devices are just one of many electronic, sensing and computing devices available to the patient; this opens up a different perspective for both the opportunities and risks for wearable technologies. Drawing from the SPHERE project, in which more than a hundred members of the public lived with a platform of wearable and non-wearable technologies for periods of up to a year, Ian Craddock will present some lessons learnt and some of the next steps for the project team in the newly-awarded EPSRC Programme Grant "TORUS".</p>
2.20	<p>Development of E-Textile-Based Medical Devices for Managing Chronic Conditions – Prof. Kai Yang (Winchester School of Art, University of Southampton)</p> <p>Emerging advancements in e-textiles present great opportunities to push the boundaries of healthcare technology by improving the user experience and motivating the user adherence to treatment and health monitoring. This talk will present the development of e-textile based medical devices for managing chronic conditions such as osteoarthritis pain and stroke funded by the UKRI, and opportunities and challenges in R&D and commercialisation of e-textile healthcare products.</p>



2.40	<p>Intelligent Apparel - The Health Data System of the 21st Century – Simon McMaster (Footfalls and Heartbeats)</p> <p>Today as we all struggle to look after ourselves, our loved ones and our friends, there is a solution to improving the collective health of society. That solution is what you are wearing.</p> <p>Your clothes are the cultural constant that you spend most time either selecting, collecting or wearing. They provide a unique micro-mechanical structure that allows the collection of vast quantities of health data. Please note, not fitness, not exercise not well-being, HEALTH.</p> <p>This talk will highlight the benefits of this collection method and unprecedented opportunity that this data will provide society. I don't want to sell your data, make you watch endless ads or forward far too many cat videos. Footfalls wants to make you mentally, physically and emotionally healthier and your 21st century apparel will do just that.</p>
3.00	Panel discussion – Q&A and General Discussion (coffee break)
3.10	<p>Facilitated Workshop Session</p> <ol style="list-style-type: none"> 1. For monitoring applications - what parameters could e-textiles be used to monitor, and where best on the body to measure? 2. For therapeutic applications – what treatment could e-textiles provide and how it advances the current treatment methods? 3. What are the important considerations from a user perspective/ barriers to use adoption? 4. What are the technical obstacles to implementing an e-textiles solution in these applications?
4.25	Wrap Up and Next Steps
4.30	Close