Sensing in the community – Wearables and other sensors for at home monitoring of health and wellbeing

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This project sits within the ACRC Academy, a dedicated Centre for Doctoral Training, co-located with the Advanced Care Research Centre (ACRC), a new multi-disciplinary research centre at the University of Edinburgh. The ACRC’s students will deliver key aspects of the ACRC research agenda through a new doctoral-level research and training programme that will also equip them for careers across a wide range of pioneering and influential leadership roles in the public, private and third sectors.

The PhD with Integrated Study in Advanced Care is a novel, structured, thematic, cohort-based, programme of 48 months duration. Each PhD research project within the Academy has been devised by a supervisory team comprising academic staff from at least two of the three colleges within the University of Edinburgh. Each annual cohort of around twelve will include students with disciplinary backgrounds spanning from engineering and data science to humanities, social science, business and commerce, social work, medicine and related health and care professions. This unique level of diversity is a key attribute of our programme.

Project:

Aim

To develop new wearable, connected sensors and data analysis systems to give ownership of health and wellbeing measurements and data to older people with complex health needs and provide useful data on progress to healthcare professionals.

Objectives

- Develop robust, user-friendly sensor systems for health parameters for older people with complex needs, which can help them self-monitor in a way that meets their requirements. This should include subjective data on mental health and wellbeing as well as objective sensor data.
- Develop a data analysis back end for this rich, multi-parameter data to aid patients and healthcare professionals in using results to monitor health and provide early warning of problems that could lead to hospitalization.
- Engage with community-based support groups for older people with complex health needs to investigate how self-monitoring empowers them to manage and improve their health and wellbeing, through the data gathered from the sensors/data systems.
- Technology developed in this project will be actively co-developed in partnership with older people in response to their specific needs, to ensure that it not only meets these needs but also includes them in the process of system design, giving them co-ownership of the research.
- Mixed-methods study of the experience of using digital technology for health in the community; gathering information on best practice for engagement with monitoring for health in individuals with complex health needs.
**Description**

We are seeking an enthusiastic and self-motivated student to undertake a PhD in biomedical sensor development. The project will be supervised by Dr. Stewart Smith (Engineering), Liesbeth Tip (Health in Social Science) and Dr. Kasia Banas (Usher Institute) with collaborators from EPSRC - Our Health. The aim of the project is to develop and apply wearables and other sensor systems to improve health and wellbeing for older people living with complex health needs. This exciting project involves a combination of experimental and computational engineering, as well as interdisciplinary training in data science, psychology, and participatory action research.

**Eligibility:**

We are specifically looking for applicants who will view their cutting-edge PhD research project in the context of the overall vision of the ACRC, who are keen to contribute to tackling a societal grand challenge and who can add unique value to – and derive great benefit from – training in a cohort comprising colleagues with a very diverse range of disciplines and backgrounds. We advise prospective candidates to engage in dialogue with the named project supervisor and/or the Director of the Academy prior to submitting an application.

**Recruitment:**

The current round of recruitment will end on 26 November. Thereafter, if places remain we will recruit on a rolling basis.

It is essential to read the How to Apply section of our website before you apply:

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