CAMBRIDGE CARES CAMBRIDGE CENTRE FOR ADVANCED RESEARCH AND EDUCATION IN SINGAPORE LTD.

Research Fellow (Healthcare Artificial Intelligence Researcher)

Who are we?

We are the University of Cambridge research centre in Singapore called Cambridge CARES, sponsored by the NRF CREATE program CAM.CREATE. Health-driven design for cities (HD4) is a collaborative research programme between the University of Cambridge, Nanyang Technological University and National University Singapore within Cambridge CARES. HD4 will deliver highly actionable data and evidence on the social determinants of health in Singapore, which have the potential to improve the public's health.

HD4 sits at the heart of Singapore's global research and development hub and paves the way for a sustainable and healthy city. It will undertake research in the following key areas: characterising the features of the environment that potentially impact health in Singapore; understanding the links between environmental factors, individual behaviours and health outcomes; observing the impact of environmental change on health in Singapore; simulating the impact of potential changes on the health of Singaporeans; and working with government agencies to co-develop data-rich public health tools. A key component of the project is SG100K, a population-based cohort of 100,000 participants with detailed information already collected. The cohort will be measured again in the future and we are therefore also pilot testing new methods of assessment.

The scientific techniques, technologies, tools and most importantly the knowledge gained through the programme will create a comprehensive systems view of how the urban environment affects population health in Singapore.

The programme will train and enrich the talent pool of next generation of researchers, and benefit from local and international expertise and an innovative interdisciplinary research ecosystem. It will provide the basis for a data-rich public health framework, supporting the development of a healthy Singapore.

Who are we looking for?

We have planned a pilot study of 200 participants recruited from the existing SG100K cohort to test the feasibility of various remote assessment techniques that we are considering deploying in the cohort. These include smartphone-based location tracking, dietary assessment, physical activity monitoring, home fitness testing, and home environmental exposures such as temperature, humidity, and air pollution sensors. The overall design is to monitor participants over 7 days, on two separate occasions about 3 months apart (see Figure 1 below). There is basic app and web infrastructure in place, although lacking aspects of local information and integration.

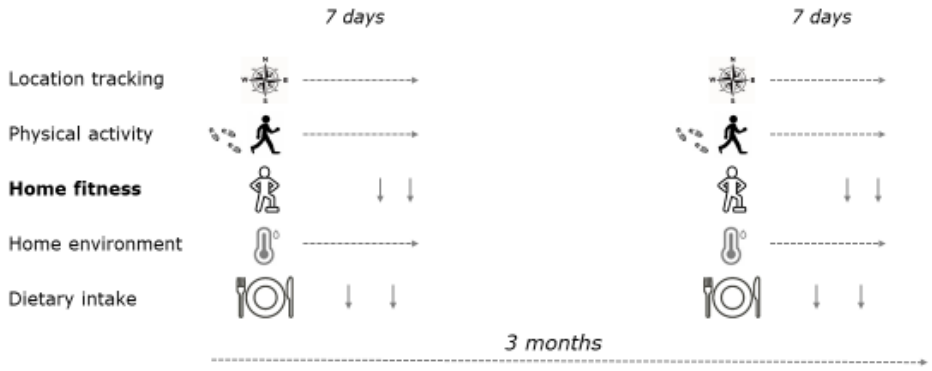

***Figure 1**. Study design of feasibility study for novel remote assessment methods in SG100K (HD4 phase 1). Focus of the advertised post is highlighted in **bold**.*

We are looking for three research fellows to execute this study and work out the details, liaising with the SG100K team to select and recruit 200 participants, run focus groups to get user feedback on procedures and concerns, check data flows, analyse the data to inform future large-scale implementation, write up and publish results in peer-reviewed journals. The fellows will closely coordinate the project with each other and the work package leads, however with slightly different foci.

One of the research fellows (this post based at CARES, CREATE Tower) will focus on the home fitness assessment and one (also based at CARES, CREATE Tower) will focus on deploying and retrieving data from smarthome sensors; they will both work closely with Soren Brage, Falk Mueller-Riemenschneider and Jason Lee's team at NUS. The third research fellow (based at LKC, NTU) will focus on the location tracking, diet and activity behavior monitoring, and work closely with Soren Brage, John Chambers and Falk Mueller-Riemenschneider. At least one day per week, all fellows will be based at the CREATE Tower to facilitate coordination of the feasibility study as well as with the work in other work packages by the rest of the HD4 team.

What skills will you need?

The Research fellow focusing on home fitness assessment will have a PhD or equivalent experience in a field involving physiology, exercise testing in population settings, measurement of heart rate and oxygen consumption, and validation, as well as the analysis and academic reporting of such data.

Many participants in SG100K would have had heart rate measured in response to a submaximal treadmill test as part of their clinical assessment in the study. This yields an estimate of cardiorespiratory fitness. We wish to determine if we can assess fitness in the home setting using wearable and/or smartphone technology. This includes determining which of the government-issued wearables have sufficient accuracy for measuring heart rate during exercise. There is a limited budget for further app and web interface development. It also possible to design and conduct a small validation study against oxygen consumption during maximal exercise testing.

What can we offer you?

- A stimulating working-environment with friendly, highly motivated colleagues.
- Opportunities to develop and implement new ideas in a creative environment.
- A competitive salary in line with your skills and experience.
- A comprehensive medical insurance cover as part of your employment.

Please note this post is mainly based in the CREATE Tower at NUS University Town, Singapore.

How to apply?

Please apply by uploading your CV and academic transcript to https://employmenthero.com/jobs/job/8d2666c2-8203-49ce-8b63-b77ce35e2712/. If you have any questions, please feel free to reach out to the HR team at recruitment@cares.cam.ac.uk.

Informal enquiries could be sent to the academic leads of the project:

Soren Brage (University of Cambridge)
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Falk Mueller-Riemenschneider (National University of Singapore)
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