

## **Research Fellow (AI Researcher - GIS)**

### **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 is motivated by the rising burden of non-communicable diseases on individuals and wider society in Singapore. HD4 will study the relationship between the environment, health behaviours and health outcomes, identifying and addressing key risk factors to understand and influence the upstream determinants of health in Singapore. It will exploit a unique opportunity to work synergistically with the SG100K cohort study, augmenting it with data characterizing the individual environmental exposures of the cohort participants. HD4 will use an established co-creation approach to work with government agencies to ensure that the tools and public health models that it develops are influential in translating research into action. Overall, the HD4 project has the potential to identify how Singapore can be developed to optimize health and be a research-driven exemplar for other Asian cities.

### **Who are we looking for?**

CARES is offering an exciting opportunity to join a vibrant research group, giving you the opportunity to contribute to this applied research project of direct relevance to government policy and public health. We are seeking to appoint a Research Fellow with a track record of using geographical information systems (GIS) or spatial data science techniques, and with a strong quantitative background, to contribute across HD4 work packages that contain a geographical component.

You will be educated to PhD level and have a proven track-record of manipulating, mapping and summarizing large volumes of complex location and attribute data (through use of dedicated GIS software or other programming language). Ideally, you will have experience of conducting spatial network analyses (e.g. least-cost path, location-allocation) and you might have some programming experience (e.g. Python, Java, C). You will also have strong quantitative analytical skills. You will have experience of writing up research outputs for a variety of audiences, including as peer-reviewed publications (including manuscripts submitted, under review or in press). Excellent time management, oral and written communication skills, with a track record of problem solving, managing your own workload, working independently and meeting deadlines, will be required.

The post is available until the end of April 2027 with a start date of April/May 2025. The role is under the supervision of work package leads in Singapore (including Dr Rudi Stouffs, Dr Marie Loh) and the UK (including Dr Ronita Bardhan, Dr James Woodcock, Dr Louise Foley, Dr Jenna Panter) and you will be line managed remotely by Dr Thomas Burgoine (University of Cambridge). The PIs on the HD4 project are Professor Nick Wareham (Cambridge) and Professor John Chambers (Singapore).

### **Key Responsibilities:**

Core responsibilities will include identifying potential environmental data sources (e.g. retail, transport network) in conversation with local stakeholders, and derivation of granular exposure estimates at person and small area levels on relevant environmental characteristics to underpin epidemiological analysis of related health behaviours. Characteristics of the environment are likely to include many aspects of feature accessibility including food retail, facilities that promote physical activity, and green space. These data will be used to link neighbourhood environmental exposures to the individual records of SG100K participants, supporting analyses of relationships with health behaviours (physical activity, sedentary behaviour, sleep, diet and fitness). You will also be expected to contribute to detailed data collection, development of study protocols and the conduct of subsequent spatial epidemiological analyses.

The key responsibility is to undertake the research described, under the management of the work package leads. The post holder will contribute to the overall aims and successes of the research project as allocated to them, such that they deliver their aims and objectives to the agreed timescales. Where relevant, the post holder will be expected to develop new skills required to meet project targets.

The post holder will be responsible for writing manuscripts for peer-reviewed publication, based on the research conducted; presenting their research results at internal meetings, external conferences and other engagement events; and discussing their work and findings with external academic and non-academic stakeholders.

### **What skills will you need?**

- Education and Qualifications: PhD in public health or a related subject (e.g. health geography, transport geography, spatial data science, GIScience, epidemiology, spatial epidemiology)
- Specialist knowledge and skills:
  - Strong working knowledge of a geographic information system (e.g. ArcGIS, QGIS), or appropriate programming language (e.g. R, Python) for manipulating, mapping and summarizing spatial data
  - Specific knowledge of network analyses in a standalone GIS (e.g. ArcGIS, QGIS) or programmatically (e.g. R, Python)
  - Familiarity with secondary data sources pertaining to environmental characteristics in SG
  - Programming experience (e.g. Python, C, C++, Java) OR demonstrable track record of having understood and adopted advanced technologies in research
  - Strong quantitative background and experienced in the use of software (e.g. Stata, R) or programming code (e.g. Python), for statistical analyses
  - Excellent time management skills
  - Ability to make own workload
  - Topic knowledge in the field of neighbourhood determinants of health
- Communication and Interpersonal skills:
  - Excellent interpersonal and communication skills with academic and non-academic stakeholders
  - Track record of peer-reviewed publications as first author
  - Strong skills and experience working collaboratively as a member of a multidisciplinary team

### **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/position/247e6fb5-df9b-42df-868f-e7bb934dd139/>. If you have any questions, please feel free to reach out to the HR team at [recruitment@cares.cam.ac.uk](mailto:recruitment@cares.cam.ac.uk).

Informal enquires can be sent to the academic lead of this work package: [tb464@medschl.cam.ac.uk](mailto:tb464@medschl.cam.ac.uk)