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

Transport Modeller (AI 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 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 behaviour 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.

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 are seeking a highly skilled and motivated Transport Modeller to join our project, HD4. Working collaboratively with a team of population health scientists, geospatial scientists, and data engineers, the post holder will lead on building an agent-based simulation model for Singapore. This role requires a multi-skilled individual that can work collaboratively in a multidisciplinary team environment.

Key Responsibilities:

- **Collaboration:** Work closely with researchers to understand the data needs of the programme and contribute to the design of scientifically robust and policy relevant models linking transport, the built environment, and health outcomes
- **Data synthesis:** Collaborate with the data engineer and geo-spatial scientists to run simulations within a temporally and spatially detailed network
- **Model building:** Build operational agent based behavioural models covering vehicle ownership, trip generation, mode choice, destination choice, and route choice for diverse population groups.
- **Validation:** Ensure model robustness through checking, calibration, and validation.
- **Support:** Provide technical support and training to researchers.
- **Documentation:** Create and maintain comprehensive documentation for model development. Support project reporting.
- **Innovation:** Stay updated with the latest advancements in transport modelling to incorporate new technologies and methodologies.

What skills will you need?

- Education: PhD degree in a relevant field.
- Experience: Proven experience in agent-based transport modelling.

- Skills:
  - Expertise in econometric travel behaviour modelling
  - Practical experience of simulation model building, calibration, and validation
  - Understanding of land use transport interaction models
  - Experience with agent-based network assignment models such as MATSim
  - Proficiency with spatial analysis tools, databases, and libraries (e.g., PostGIS) and programming languages (e.g., Python, R) for GIS applications.
  - Proficiency in programming languages such as Java.
  - Interest in built environment influences on health behaviours and exposures and health disparities
  - Experience of working with at least one health related pathway e.g. air pollution, physical activity, greenspace, noise, or diet
- Communication: Excellent oral and verbal communication skills.
- Teamwork: Ability to work collaboratively in a multidisciplinary team environment.
- Preferred Qualifications:
  - Experience with version control systems (e.g., Git).
  - Knowledge of software development methodologies and best practices.
  - Familiarity with remote sensing and GPS technologies.
  - Experience working with sensitive (e.g., personally identifiable) data.

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.
- Opportunity to work as part of a world-leading scientific research programme.

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://jobs.swagapp.com/jobs/cambridge-cares-transport-modeller-ai-researcher-for-hd4-jw. If you have any questions, please feel free to reach out to the HR team at recruitment@cares.cam.ac.uk.