POSITION DESCRIPTION

POSITION TITLE: Research Officer
CLASSIFICATION: RO1-3
EMPLOYMENT: Full time fixed term
GROUP: Systems Neuroscience
LOCATION: Herston

POSITION OBJECTIVES

This role will work with smart sensing devices for measuring lifestyle factors in day-to-day life, such as physical activity, behavioural patterns, sleep rhythm, social connectivity. Under joint-supervision of QIMR Berghofer and CSIRO, the position involves developing smart phone APPs for data acquisition, and cloud solutions for data storage and sharing. The position will design novel algorithms for pattern recognition, and examine the relationship between lifestyle factors and risks for dementia.

ORGANISATIONAL CONTEXT

QIMR Berghofer is a statutory body under the QIMR Act (1945). The mission of QIMR Berghofer is to promote the wellbeing of humankind through medical research, to maintain within the State of Queensland an internationally recognised Centre for Medical Research, to develop that Centre as the primary focus of Medical Research within the State and to co-operate with, and where possible assist the work of other medical research establishments within the State and throughout the world.

The Perspective Imaging Study of Ageing (PISA) study is collaborative project between the Mental Health program at QIMR Berghofer, CSIRO, UQ, and RBWH. This study focuses on the very early stage of dementia and is Australia's first younger healthy cohort selected for high risk of dementia. PISA is a multidisciplinary platform that combines cutting-edge bioinformatics, brain imaging and lifestyle monitoring to understand the mechanisms of this devastating disease. As one of the five study cores of PISA, the current project employs smart sensing technology to achieve lifestyle monitoring in everyday life.

About CSIRO

At CSIRO we invent the future. We do this by using science and technology to solve real issues. Our solutions make a difference to industry, people and the planet.

As Australia’s national science agency, we’ve been pushing the edge of what’s possible for almost 90 years. Today we have thousands of talented people working across Australia and
internationally. Our people work closely with industry and communities to leave a lasting legacy. Collectively, our innovation and excellence places us in the top ten applied research agencies in the world. We collaborate to innovate.

Find out more at [www.csiro.au](http://www.csiro.au).

**About AEHRC**

The Australian e-Health Research Centre (AEHRC) is the leading national research facility applying information and communication technology to improve health services and clinical treatment for Australians. For further information please visit [www.aehrc.com](http://www.aehrc.com).

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**REPORTING STRUCTURE**

This position reports to the Team Head and works closely with staff at CSIRO.

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**PRIMARY RESPONSIBILITIES**

- Develop smart phone APP for data acquisition from and connectivity to smart device.
- Develop cloud solution for data storage and transferring.
- Design novel algorithms for pattern recognition and developing new health measures.
- Conduct data analysis to examine the relationship between lifestyle factors and risks for dementia.
- Ensure work practices comply with the requirements of the *Work Health and Safety Act* related legislative requirements, the Institute’s WH&S polices and procedures.

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**KEY SELECTION CRITERIA (Qualifications, Experience, Skills, and Abilities)**

**Essential**

- Doctoral qualification in Computer Science and Engineering or in a related disciplinary area with expertise in Internet of Things (IoT), Machine Learning/Data Mining, Signal Processing.
- Demonstrated experience with Mobile system programming (IOS and Android), Web development, activity and physiological sensor devices.
- Demonstrated experience of mathematical/analytical approach to address real world questions, and ability to design efficient algorithms to explore big data.
- Ability to conduct high-quality independent research, with a track record of scholarly publications in top-ranked journals and in flagship conferences.
- Ability to work independently as well as collaboratively.
- Evidence of strong oral and written communication skills.

**Desirable**

- Previous experience with application of smart sensing in clinical and/or medical research settings.
- An interest in smart sensing, big data and their clinical applications.
- Proficiency in data mining/machine learning software and tools.