Title:	Research Associate in Computer Vision and Android App Software Development for Disease Diagnosis
Reference:	**1639536**
Grade:	7
Salary:	£34,056 - £41,163 (inclusive of London Allowance)
Terms and Conditions:	In accordance with the conditions of employment as laid down in the relevant UCL Staff policies
Accountable to:	Professor Rachel McKendry, London Centre for Nanotechnology UCL.

Job Summary:

i-sense, the EPSRC IRC in Early Warning Sensing Systems for Infectious Disease (www.i-sense.org.uk), is an £11M, five-year collaborative research programme that aims to engineer novel diagnostic sensors for diseases such as influenza, HIV and Ebola and to investigate the feasibility of using data from the Web to assist in the surveillance of infectious disease outbreaks. Partners include Imperial College London, Newcastle University and the London School for Hygiene and Tropical Medicine, as well as Public Health England, the Africa Health Research Institute (AHRI) and industrial partners, www.i-sense.org.uk.

The purpose of this research post is to develop an Android-based platform to support i-sense diagnostic test research. The Android application(s) will comprise several modules including data (image) acquisition, data filtering, image processing, data storage, data analysis and visualization. The Android platform and applications will be used to support research on novel paper microfluidic lateral-flow tests for infectious diseases. These devices are analogous to common pregnancy tests but where colour changes signal the presence or absence of a particular biomarker of disease. The Android apps are expected to capture, analyse and report results to both the user and a central secure database.

This post will be based at the London Centre for Nanotechnology, UCL Bloomsbury Campus, though location is flexible, and is funded for 12 months in the first instance.

Duties and Responsibilities:

This post is responsible for software development for i-sense. Working with the Principal Investigator Professor Rachel McKendry (London Centre for Nanotechnology) and Professor Ingemar Cox (UCL Computer Science) and relevant researchers, the post holder will lead the development of Android software and support the delivery of the demonstrations and associated material to potential users.

The post-holder will be required to work as part of a multidisciplinary research team and will be responsible for tasks that include designing and implementing software to collect data and images from mobile phones, designing real-time visualization tools to display the information, designing and implementing databases to store information obtained from mobile sensor systems, and documenting and publishing the results.

Person Specification

Essential Qualifications

A PhD or degree in science, engineering, or a computing discipline, or equivalent professional experience

Essential Experience

Recent (*i.e.* up-to-date) demonstrable experience-based knowledge of Android app development

Experience in computer vision / image analysis

Desirable Experience

Postgraduate qualification in computational science or engineering, applied mathematics or computer science, or equivalent professional experience

Foundation in engineering mathematics

Experience in web-based software: PHP, MySQL, Java, HTML, Hadoop

Experience using Unix-based operating systems and Unix system tools and utilities

Experience in the use of a variety of Shell and scripting languages such as Python

Commercialisation of apps

Essential skills and abilities

Ability to read, understand and implement algorithms.

Excellent written and verbal communication skills including the ability to effectively present complex or technical information effectively to a range of audiences.

Ability to work collaboratively and as part of a multidisciplinary team with chemists, virologists, engineers, clinicians, public health and human-computer interaction researchers.

Ability to work under own initiative and 'can do' attitude

Desire to keep up-to-date and learn about new developments relevant to the main purpose of the post

Knowledge of software development best practice including testing, documentation, version control etc.

Ability to forge effective professional relationships at all levels

Ability to manage multiple concurrent tasks and activities, working to deadlines and prioritising as appropriate

London Centre for Nanotechnology

The London Centre for Nanotechnology is an interdisciplinary joint enterprise between University College London and Imperial College London. In bringing together world-class infrastructure and leading nanotechnology research activities, the Centre aims to attain the critical mass to compete with the best facilities abroad. Research programmes are aligned to three key areas, namely Planet Care, Healthcare and Information Technology and exploit core competencies in biomedical, physical and engineering sciences.

The Centre occupies a purpose-built eight storey facility in Gordon Street, Bloomsbury, as well as extensive facilities within different departments at South Kensington. LCN researchers have access to state-of-the-art clean-room, characterisation, fabrication, manipulation and design laboratories. This experimental research is complemented by leading edge modelling, visualisation and theory.

LCN has strong relationships with the broader nanotechnology and commercial communities, and is involved in much major collaboration. As the world's only such facility to be located in the heart of a metropolis, LCN has superb access to corporate, investment and industrial partners. LCN is at the forefront of training in nanotechnology, and has a strong media presence aimed at educating the public and bringing transparency to this emerging science.

About UCL

UCL is one of the world's top universities. Based in the heart of London, it is a modern, outward-looking institution. At its establishment in 1826, UCL was radical

and responsive to the needs of society, and this ethos – that excellence should go hand-in-hand with enriching society – continues today.

UCL's excellence extends across all academic disciplines; from one of Europe's largest and most productive hubs for biomedical science interacting with several leading London hospitals, to world-renowned centres for architecture (UCL Bartlett) and fine art (UCL Slade School).

UCL is in practice a university in its own right, although constitutionally a college within the federal University of London. With an annual turnover exceeding £1 billion, it is financially and managerially independent of the University of London.

The UCL community

UCL's staff and former students have included 29 Nobel prizewinners. It is a truly international community: more than one-third of our student body – more than 35,000 strong – come from 150 countries and nearly one-third of staff are from outside the UK.

UCL offers postgraduate research opportunities in all of its subjects, and provides more than 200 undergraduate programmes and more than 400 taught postgraduate programmes. Approximately 54% of the student community is engaged in graduate studies, with about 29% of these graduate students pursuing research degrees.

Quality of UCL's teaching and research

UCL is independently ranked as the most productive research university in Europe (SIR).

It has 983 professors – the highest number of any university in the UK – and the best academic to student ratio of any UK university (*The Times*, 2014), enabling small class sizes and outstanding individual support.

In Research Excellence Framework 2014 (REF2014), UCL was rated the top university in the UK for 'research power' (the overall quality of its submission multiplied by the number of FTE researchers submitted). It was rated top not only in the overall results, but in each of the assessed components: publications and other research outputs; research environment; and research impact. REF2014 confirmed UCL's multidisciplinary research strength, with many leading performances across subject areas ranging from biomedicine, science and engineering and the built environment to laws, social sciences and arts and humanities.

Equality

UCL is proud of its longstanding commitment to equality and to providing a learning, working and social environment in which the rights and dignity of its diverse members are respected. Some highlights below:

- **Race Charter Mark** - UCL holds a Bronze Race Equality Charter Mark award, recognising UCL's commitment to improving the representation, progression and success of minority ethnic staff and students.

- **Athena SWAN** - UCL holds an institutional Silver **Athena SWAN** award – this recognises our commitment to and impact in addressing gender equality. Departments at UCL are also engaged in the Athena SWAN charter, with 29 departments holding an award; 16 Silver and 13 Bronze.

- **Staff networks** - We have a number of staff networks that run a range of social and development activities, for example **Out@UCL**, **PACT**, **Enable@UCL**, **the race equality staff network**, **Astrea** and **UCL Women**.

- **B-MEntor** – **B-MEntor** is a mentoring scheme for black and minority ethnic staff. The mentoring scheme is a collaborative initiative with a number of London-based universities.

- **Sabbatical Leave following maternity** – UCL provides one term of sabbatical leave without teaching commitments for research-active academics returning from maternity, additional paternity, adoption or long-term carer's leave. This support for returners enables staff to more quickly re-establish their research activity.

Please see our **Equalities and Diversity Strategy 2015-2020** for information on our current priorities.

Location and working environment

Based in Bloomsbury, UCL is a welcoming, inclusive university situated at the heart of one of the world's greatest cities.

UCL's central campus is within easy reach of Euston, Kings Cross and Marylebone mainline stations, the new Eurostar terminal at St. Pancras and the following Underground stations - Euston Square, Warren Street, Goodge Street and Russell Square. Road connections to the M1 and M40 motorways give easy access to the north and west road networks. There are also good public transport links to Heathrow airport.

Application procedure

Further details about the post and the application procedure are available at www.london- nano.com. If you are unable to apply online please contact Marta Dul at the London Centre for Nanotechnology, m.dul@ucl.ac.uk or 17-19 Gordon Street, London WC1H 0AH, for advice.