UNIVERSITY OF SUSSEX

Advertisement
Ref: 1518

School of Engineering and Informatics
Department of Engineering and Design
Senior Software Developer with Android and Machine Learning expertise (Fixed term for 6 months, full time)
Salary range: starting at £39,324 and rising to £46,924 per annum
Expected start date: January 2017

The Wearable Computing Group is looking for a senior software developer with Android and machine learning expertise to take on the role of software developer on a unique and exciting collaboration between Sussex University and a large multinational active in the mobile sector.

The successful candidate will work on the project entitled "Activity sensing technologies for mobile users", based in the Wearable Computing Group within the Sensor Technology Research Centre at the University of Sussex, as part of a dedicated and talented team.

We are looking for an exceptionally talented Android and machine learning expert; a person with a strong background in engineering and ideally some research experience. As a developer you will be contributing to the creation and improvement of software applications to collect research data from mobile devices. You will also be responsible to run data collection campaigns both on the technical side and by participating into the recruitment of project assistants, whom you will manage to perform the data collection. You will be responsible to ensure data collection of high quality which will require you to develop software tools employing a range of statistical and machine learning methods to ensure data consistency, such as K-means, neural networks, trees, ensemble methods etc. Ideally, you will also have previous experience in designing and deploying data collection environments, specifically sensor systems aimed to capture human activity data in the wild, and have had research experience.

You will be responsible to regularly produce deliverables for the multinational with which we collaborate, and ideally you have past experience with industrial R&D. You will be expected to pursue project based goals and actively contribute to project deliverables. You should also have good organisational and good interpersonal skills; travel to project partners is required for meetings; and collaboration with other researchers is essential.

Skills required:
- Expertise in Android app development
- Proficiency in Java and Python
- Experience with common data science toolkits, such as Weka, NumPy, MatLab, etc.
- Willing to work in a research lab environment
- Communicative, enthusiastic and good a team player
- Experience with industrial R&D
- Experience in developing data collection software
- Experience in collecting reference datasets

Skills desired:
- Proficiency in applied statistics skills, such as distributions, statistical testing, regression, etc.
- Experience in human gesture and activity recognition
- Organized and pro-active, with strong attention to detail

Successful candidates will have as a minimum a first degree in a computer science or related area, ideally with programming experience in machine learning and mobile apps. You will be appointed within the Department of Engineering and Design, working with the research team lead by Dr Daniel Roggen
For any further information and inquiry contact Dr Daniel Roggen: d.roggen@sussex.ac.uk
More information about the Sensor Technology Research Centre: http://www.sussex.ac.uk/strc
More information about the Wearable Technologies Lab: http://www.sussex.ac.uk/strc/research/wearable
Applications should be accompanied by a full CV and a statement of how you envisage your role.

**Closing date for applications:** 13 January 2017

For full details and how to apply see www.sussex.ac.uk/jobs

*The University of Sussex is committed to equality of opportunity.*
2. **Senior leadership and management**

The Vice-Chancellor (Professor Adam Tickell) is the senior academic officer and, as Chief Executive, is responsible to the University Council for management of the University. He is supported by an executive group which includes the three Pro-Vice-Chancellors, the Registrar and Secretary, the Director of Finance and the Director of Human Resources. The Heads of the Schools of Studies at Sussex report to the Pro-Vice-Chancellors.

The Registrar and Secretary heads the Professional Services of the University. In addition, under the University Statutes, the Registrar and Secretary is Secretary to the University Council. The Director of Finance reports to the Vice-Chancellor. The Director of ITS reports to the Registrar and Secretary, and the Librarian reports to one of the Pro-Vice-Chancellors.

3. **The School / Division**

The School of Engineering and Informatics covers the disciplines of computer, electrical and electronic engineering, mechanical, and automotive engineering, product design, digital media, computer science and informatics.

Distinctive characteristics of the School are: creativity, interdisciplinarity, strong links with industry, and an international outlook in both research and teaching. £10m (£4.9m from HEFCE) is being invested in a new Computing, Robotics, Electronics and Mechatronics Centre (CREaM) as a result of a 60% surge in applications for the School’s degrees.

The School offers a range of undergraduate and postgraduate degrees in its areas of expertise, often in collaboration with other schools at Sussex, to create a distinctive focus that addresses the needs of industry, commerce and society. Examples include joint degrees with the MSc in Evolutionary and Adaptive Systems (EASy) that includes modules from the Schools of Engineering and Informatics and Psychology; and the MScs in Engineering Business Management, and Management of Information Technology, which were developed in collaboration with the School of Business, Management and Economics.

This interdisciplinary approach also applies to our research, with current and recent externally funded projects with researchers in a wide range of other subject areas including: geomorphology, media practice, medical imaging, neuroscience, anthropology, English literature, epidemiology, geography, international development, mathematics, psychiatry, psychology and sociology.

The School has strong links with industry, and has an established Strategic Advisory Board.

Innovative research across the School has led to a number of patents which are being commercialised including: novel electric potential sensors (EPS) licensed to Plessey Semiconductors and marketed as the EPIC sensor chip; and University spin-out companies, including TribeHive, which is deploying delay-tolerant networking to provide smartphone connectivity in large crowds, and TexRAD, which has developed software for the analysis of medical images and has recently demonstrated the ability to detect brain texture anomalies in Asperger’s Syndrome patients. These developments have been supported by the University's Enterprise fund. The EPS sensor technology was awarded the IET Innovation award for 'Measurement in Action', and was shortlisted for two other IET categories and for a THES award.

The School is, for administrative purposes, comprised of two departments: the **Department of Engineering and Design**, and the **Department of Informatics**. Staff teach across the School, and undertake research on cross-School, as well as cross-University projects.

**The Department**

The Department of Engineering and Design has a strong reputation for excellence in research and teaching. Its research outputs were rated as 88%, and impact as 90% 4*/3* (world-leading/internationally excellent) in the REF 2014. In the 2014 NSS engineering students registered an 86% satisfaction level with respect to learning resources. Mechanical Engineering ranked 15th for graduate prospects, in the Complete University Guide 2015 and an overall ranking of 18th in the just released 2016 Guardian University Guide; with Electrical Engineering ranked 14th for student satisfaction in the Complete University Guide 2014.
The Department’s students won the automotive category of the Telegraph UK STEM Awards 2014 sponsored by McLaren Group (link to video).

Research activity is focused on mechanical engineering (turbomachinery, dynamics and control, and tribology); and electronic engineering (sensor technology, image and signal processing, and mobile digital communications). There are strong collaborations with industry, including Jaguar Land Rover, General Electric, Plessey Semiconductors and Meggitt Sensing Systems.

The Department’s research is organised into four groups:

- Dynamics, Control and Vehicle Research Group (www.sussex.ac.uk/dcv)
- Industrial Informatics and Signal Processing Research Group (http://www.sussex.ac.uk/iisp/)
- Sensor Technology Research Centre (www.sussex.ac.uk/strc/)
- Thermo-Fluid Mechanics Research Centre (http://www.sussex.ac.uk/tfmrc/)

The Department currently has 495 undergraduate students, 62 taught postgraduate students, and 43 postgraduate research students.

Detailed information about the Department can be found at www.sussex.ac.uk/engineering
Job Description

UNIVERSITY OF SUSSEX

Job Title: Senior Software Developer with Android and Machine Learning expertise
Grade: 8.37
School: Engineering and Informatics
Department: Engineering and Design
Location: University of Sussex Campus
Responsible to: Dr Daniel Roggen

Purpose of the post:
The position involves creating and improving software applications to collect research data from mobile devices and performing actual data collection as part of a contribution to an industry-funded research project.

The post-holder will run data collection campaigns and take responsibility both on the technical side and by participating into the recruitment of project assistants, whom you will manage to perform the data collection. The post-holder will be responsible to ensure data collection of high quality which will require to develop software tools employing a range of statistical and machine learning methods to ensure data consistency, such as K-means, neural networks, trees, ensemble methods etc. Ideally, the post-holder will also have previous experience in designing and deploying data collection environments, specifically sensor systems aimed to capture human activity data in the wild, and have had research experience.

The post-holder will be responsible to regularly produce deliverables for the multinational with which we collaborate, and ideally you have past experience with industrial R&D. The post-holder will be expected to pursue project based goals and actively contribute to project deliverables. The post-holder should also have good organisational and good interpersonal skills; travel to project partners is required for meetings; and collaboration with other researchers is essential.

The post-holder will work closely with Dr Daniel Roggen and members of the wearable technologies and sensor technology research centre.

Key Responsibilities:

1. Develop a data collection platform for mobile devices including client and server applications
2. Develop a software toolchain to verify and ensure quality of data using a range of statistical and machine learning methods
3. Manage the data collection campaign both on the technical and human side
4. Write reports and deliverables for the industrial partner
5. Participate in regular team meetings and contribute to the planning of such meetings.
6. Participate to project meetings and present project progress
7. Engage in the conceptual design (ideation process) for potential new apps.
8. Contribute as a programmer to all centre research and university consultancy projects as appropriate.

This Job Description sets out current duties of the post that may vary from time to time without changing the general character of the post or the level of responsibility entailed.
## Person Specification

**UNIVERSITY OF SUSSEX**

Person Specification for the post of:
Senior SoftwareDeveloper with Android and Machine Learning expertise

### SKILLS / ABILITIES

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<tr>
<th>Essential</th>
<th>Desirable</th>
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<tr>
<td>Demonstrated experience in the application of machine learning and pattern recognition techniques for activity and gesture recognition.</td>
<td>X</td>
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<td>High level of skills and practical ability in JAVA and Python. Python experience is essential.</td>
<td>X</td>
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<tr>
<td>Strong scientific background on statistics, machine learning and signal processing.</td>
<td>X</td>
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<td>Project management: requirements, planning, coordination and customer communication.</td>
<td>X</td>
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<td>Outstanding communication skills, both written and verbal.</td>
<td>X</td>
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<td>Experience with industrial R&amp;D</td>
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<td>Experience in developing data collection software</td>
<td>X</td>
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<td>Experience in collecting reference datasets</td>
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### KNOWLEDGE

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<th>Desirable</th>
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<td>Knowledge of the Android stack (Java, Android SDK SQLite, etc). Develop and maintain Android mobile applications.</td>
<td>X</td>
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<td>Familiarity with using Gradle/Android Studio</td>
<td>X</td>
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<td>Knowledge of source control - ideally Git</td>
<td>X</td>
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<td>Knowledge of appropriate operating systems, e.g. Windows, Linux, networks and associated applications and standards.</td>
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### EXPERIENCE

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<tr>
<td>Proven experience in programming, preferably app development.</td>
<td>X</td>
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<tr>
<td>Experience of using a range of machine learning frameworks in Python (scikit-learn, pandas, etc.)</td>
<td>X</td>
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<tr>
<td>Experience designing and deploying data collection environments. Experience using scientific design and data collection methodologies and tools to collect and validate research data.</td>
<td>X</td>
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</table>
Application and implementation of experimental design, scientific procedures and processes, and data analysis. | X
---|---
Experience with Hidden Markov Models, Support Vector Machines, Deep Learning, and other commonly used techniques in machine learning and pattern recognition, such as dimensionality reduction, metric learning, classifiers, and information fusion. | X

**QUALIFICATIONS**

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<tr>
<th>Essential</th>
<th>Desirable</th>
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<tr>
<td>To be degree qualified in computer science or related.</td>
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**PERSONAL ATTRIBUTES AND CIRCUMSTANCES**

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<th>Essential</th>
<th>Desirable</th>
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<tr>
<td>Able to work flexible and unsocial hours including weekends as and when required to efficiently complete research goals and deliverables</td>
<td>X</td>
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<td>Able to work independently and in a team</td>
<td>X</td>
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Date 30 November 2016