

Research Role Profile

Job Title:	Research Software Engineer
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Responsible to:	Principal investigator
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Responsible for:	There is no direct supervisory responsibility
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Job Summary and Purpose:
To develop mobile and web applications in accordance with specified research aims under the supervision of the principal investigator

Main Responsibilities/Activities
<p>This information sheet should be read in conjunction with the accompanying generic Research Officer (1b) Role Profile and will be used for shortlisting processes.</p> <p>This is an exciting opportunity to join the HumBug II project team, with an ambitious goal to use the distinctive buzz of insect species for surveillance of invasive species in the United Kingdom. Invasive insect species have the potential to outcompete or predate native species and bring disease. As mobile devices increasingly support biodiversity monitoring, acoustic detection and identification of insects opens up a new avenue to expand the coverage of biodiversity monitoring in the UK. A major challenge is the gap between the large volume of raw acoustic recordings generated through passive monitoring and the data processing capacity necessary to promptly extract valuable information from audio contents.</p> <p>We are seeking a Research Software Developer for the development of a mobile acoustic sensing system suitable for environmental acoustic sensing. The post holder will work in close collaboration with leading machine learning researchers, developers, and entomologists at the University of Oxford, to develop a general-purpose acoustic sensing system which can be tuned to specific invasive species (including the Asian tiger mosquito and Asian Hornet).</p> <p>Specific duties include:</p> <ul style="list-style-type: none"> • The development of a cross-platform acoustic sensing mobile application with on-device machine learning; • Analytical report writing detailing end-user needs including a list of design attributes and operational requirements to guide the system development and evaluation. • The refinement of the mobile application with improved UI, UX and real-time access to a cloud AI repository that meets the user and resource requirements. • A cloud server that implements machine learning model to automate post-processing workflow. • UK and Europe-wide site visits for system deployment and evaluation with colleagues at the University of Oxford and industry partners. <p>Additional duties:</p>

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- Act as a source of information and advice to other members of the group on scientific protocols and experimental techniques;
- Manage own research software development and administrative activities. This involves small scale project management, to co-ordinate multiple aspects of work to meet deadlines;
- Contribute ideas for new research projects;
- Collaborate in the preparation of scientific reports and journal articles and occasionally present papers and posters;
- Represent the research group at external meetings/seminars, either with other members of the group or alone.

Person Specification

In addition to the criteria outlined in the accompanying generic Research Officer (1B) Role Profile, the post holder should have (E = Essential; D = Desirable):

Essential

1. Hold a degree in a computer science or a related IT subject, or the equivalent in terms in professional training and experience related to the role.
2. Proficiency in programming for Android and iOS platforms.
3. Proficiency in programming languages relevant to the project, such as Python, Java, Flutter, Rust, Kotlin, and PyTorch, with a demonstrated capacity to lead the development of new APIs, user interfaces, system integrations, and reports.
4. Experience in the design, management, and implementation of a complex programming project, either as a stand-alone project or a significant contribution to an existing project.
5. Expertise and experience in software engineering.
6. The ability to effectively organise and execute tasks within a timeframe, especially under tight deadlines.
7. The ability to excel when working independently and as part of a team, possessing interpersonal skills necessary to contribute effectively to a collaborative and interdisciplinary project.

Desirable

8. Expertise and experience in any of the following: databases, front-end web development, machine Learning, cross-platform app development.

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Background Information

The post will be based in the Computer Science Research Centre, within the University's School of Computer Science and Electronic Engineering, Faculty of Engineering and Physical Sciences (FEPS).

Relationships and Contacts

Informal enquiries are welcome and should be directed to Dr Yunpeng Li,
yunpeng.li@surrey.ac.uk .