

Job Title:	Research Fellow in Machine Learning
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Responsible to:	Head of research group, or principal investigator
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Responsible for:	Not applicable
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Job Summary and Purpose

To deliver research in accordance with the specified research project.
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Main Responsibilities/Activities

<p>To contribute to the development of the research of the Faculty, by planning and carrying out research activity within a specified area, often in collaboration with colleagues.</p> <p>To take a significant role in planning, co-ordinating and implementing research programmes and, where appropriate, commercial and consultancy activities. To take lead responsibility for a small research project or identified parts of a large project. This may include planning fieldwork, data analysis and evaluation and laboratory experimentation. To make decisions about research programmes and methodologies, often in collaboration with colleagues, and to resolve the problems of meeting research objectives and deadlines.</p> <p>To develop new concepts and ideas to extend intellectual understanding. Assess, interpret and evaluate the outcomes of research, and develop ideas for the application of research outcomes. To take a role in the regular publication of results in appropriate journals, in giving presentations at national and/or international conferences, and in other outputs as required and/or appropriate.</p> <p>Continually to update knowledge and develop skills. To extend, transform and apply knowledge acquired from scholarship to research and appropriate external activities.</p> <p>To carry out management and administrative tasks associated with specified research funding, including managing and developing staff within their projects; risk assessment of project activities; organisation of project meetings and documentation; management of resources, preparation of annual reports, and management or monitoring of research budgets. To oversee and implement procedures required to ensure accurate and timely formal reporting and financial control.</p> <p>To undertake liaison with external organisations including equipment manufacturers, steering committees, associated academic facilities and commercial users.</p>
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Person Specification

The post holder must have:

Normally a doctoral degree in a relevant discipline, together with appropriate experience of working in a similar area of work.

The post holder will need to demonstrate a high level of competence and independent standing in research by being nationally recognised within their area of discipline, publishing regularly in recognised appropriate journals and attracting research funding for their own work or for other staff within the research group.

Relationships and Contacts

The post holder may have a key responsibility to the principal investigator, with prime responsibility for reporting and liaison with external funding bodies or sponsors. The post holder will also supervise the activities of PhD students and technician staff within the particular research group

Special Requirements

To be available to participate in fieldwork as required by the specified research project.

All staff are expected to:

- Positively support equality of opportunity and equity of treatment to colleagues and students in accordance with the University of Surrey Equal Opportunities policy.
- Help maintain a safe working environment by:
 - Attending training in Health and Safety requirements as necessary, both on appointment and as changes in duties and techniques demand
 - Following local codes of safe working practices and the University of Surrey Health and Safety Policy
- Undertake such other duties within the scope of the post as may be requested by your Manager.

Addendum to Role Profile

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Job Summary and Purpose:

This information sheet should be read in conjunction with the accompanying generic Research RA1A Role Profile and will be used for shortlisting processes. More specifically the post holder will be expected to:

Undertake research to find a machine learning-based solution to recognise normal anatomical structures and differentiate from subtle abnormalities in digitised dental radiographic images.

Main Responsibilities/Activities

Dental radiography is an essential tool for diagnostics of dental diseases. Dental radiography interpretation is time-consuming and often error-prone due to a high variety of dental structures, positioning and orientation errors, and the substantial amount of radiographs that need to be analysed. An automatic solution for flagging abnormalities in dental radiography is needed to improve detection accuracy cost and reduce the economical and human costs.

The main responsibility of the post holder will be the development of machine learning techniques to detect dental diseases based on dental radiographs. Specific duties include:

- Bayesian deep learning models;
- Multi-object detection algorithms;
- Software implementation and validation;
- Write analytical reports detailing findings.

Additional duties:

- Act as a source of information and advice to other members of the group on scientific protocols and experimental techniques;
- Manage own academic research 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;
- Carry out collaborative projects with colleagues in industry partners.

Person Specification

The post holder must have:

Essential

- Hold a relevant PhD/DPhil (or be near completion) in the field of Computer Science, Engineering, Physics, Mathematics/Statistics or equivalent;
- Experience in machine learning, computer vision, or statistical signal processing;
- Track record of relevant published work concomitant with experience;
- Proficiency in Python programming;
- Ability to work well independently and as part of a team, as well as to possess interpersonal skills necessary to contribute effectively to a collaborative and interdisciplinary project;
- Excellent communication skills, including the ability to write for publication, present research proposals and results, and represent the research group at meetings.

Desirable

- Expertise and experience in software engineering.

Relationships and Contacts

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