UNIVERSITY OF SURREY

Research Role Profile

Job Title:	Research Fellow in Machine Learning for Medical Imaging

Responsible to:	principal investigator

Responsible for:	There is no direct supervisory responsibility

Job Summary and Purpose:
To support research activity in accordance with specified research project(s) under the supervision of the principal investigator

Main Responsibilities/Activities
To support a research team by contributing to the planning of research projects and undertaking prescribed research tasks in accordance with specified research project(s), making use of standard research techniques and methods. These may include fieldwork, interviews, laboratory experimentation, computer-based data analysis or library research as directed by the research award holder and will entail co-ordinating own work with that of others to avoid conflict or duplication of effort. Analysing and interpreting results of own research, under the guidance of research award holder or supervisor. Write up results and contribute to the preparation of papers for submission to appropriate journals and conferences, and other outputs as required and/or appropriate. Attend appropriate conferences for the purpose of disseminating research results of personal development. Continually update knowledge and develop skills To carry out routine administrative tasks associated with a specified research project, for example risk assessment of research tasks, organisation of project meetings and documentation. This will entail planning own day-to-day research activity within the framework of the agreed programme, dealing with problems that may affect the achievement of research objectives and deadlines and implementing procedures required to ensure accurate and timely formal reporting and financial control Demonstrating, or occasionally assisting with undergraduate supervision within the post holder's area of expertise and under the direct guidance of a member of the Faculty academic staff.

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Person Specification
The post holder must have: A BA or BSc or equivalent qualification in the field of Mathematics/Statistics, Computer Science, Engineering, or equivalent. Whilst there is no requirement for previous work experience, the post holder will be expected to be able to support research activities by performing experiments and/or undertaking studies and analysing/ interpreting results.

Relationships and Contacts
Direct responsibility to the principal investigator or academic supervisor.

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.

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ADDENDUM

Job Title:	Research Fellow in Machine Learning for Medical Imaging

Main Responsibilities/Activities

This information sheet should be read in conjunction with the accompanying generic Research Officer (1b) Role Profile and will be used for shortlisting processes.

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;
- Crowdsourcing for Multi-object detection;
- 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.

Research Role Profile

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 relevant PhD/DPhil (or be near completion) in the field of Computer Science, Engineering, Physics, Mathematics/Statistics or equivalent; 2. Experience in machine learning, computer vision, or statistical signal processing; 3. Track record of relevant published work concomitant with experience; 4. Proficiency in Python programming; 5. 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; 6. Excellent communication skills, including the ability to write for publication, present research proposals and results, and represent the research group at meetings. **Desirable** 7. Expertise and experience in software engineering.

Background Information
The post will be based in the Department of Computer Science, 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 .