

## Research Role Profile

<b>Job Title:</b>	Research Fellow A in Machine Learning for PPG Signals
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<b>Responsible to:</b>	Head of research group, or principal investigator
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<b>Responsible for:</b>	Not applicable
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<b>Job Summary and Purpose:</b>
To undertake research in accordance with the specified research project(s) under the supervision of the principal investigator.

<b>Main Responsibilities/Activities</b>
<p>To undertake a range of research activities within a specified research area, assuming responsibility for specific areas of projects and making use of new research techniques and methods, in consultation with the research award holder or supervisor. This may include fieldwork, interviews, laboratory experimentation, critical evaluation and interpretation, computer-based data analysis and evaluation or library research.</p> <p>Using initiative and creativity to identify areas for research develop new research methods and extend the research portfolio. Analysing and interpreting results of own research. Write up results and prepare 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. The post holder may also contribute to writing bids for research grants and will contribute to collaborative decision making with colleagues in areas of research.</p> <p>Continually to update knowledge and develop skills, and translate knowledge of advances in the area into research activity.</p> <p>To plan and manage own research activity in collaboration with others. To carry out administrative tasks associated with specified research funding, for example risk assessment of research activities, organisation of project meetings and documentation. Implementation of procedures required to ensure accurate and timely formal reporting and financial control.</p> <p>To contribute to teaching in the Faculty by carrying out student supervision and/or demonstrating within the post holder's area of expertise and under the direct guidance of a member of departmental academic staff, as appropriate.</p> <p>The post holder may occasionally be required to supervise more junior research staff.</p>

## Research Role Profile

### Person Specification

**The post holder must have:**

A doctoral degree in a relevant discipline (although individuals who have almost completed a doctoral degree may be appointed). Consideration may also be given to individuals who do not hold a doctoral degree but have required skills based on a number of years experience in specified / relevant fields

The post holder will have authority over some aspects of project work and must be capable of providing academic judgement, offering original and creative thoughts and be able to interpret and analyse results.

### Relationships and Contacts

Direct responsibility to the principal investigator or academic supervisor. The post holder may be asked to serve on a relevant Faculty committee. There may be additional reporting and liaison responsibilities to external funding bodies or sponsors. The post holder may work on original research tasks with colleagues in other institutions.

### 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.

## Research Role Profile

### Addendum to Role Profile

<b>Job Title:</b>	Research Fellow (1A) in Machine Learning for PPG Signals
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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 for the project “Blood Glucose Estimation from Photoplethysmography Signals to Enable Continuous Blood Glucose Monitoring for Diabetics” under the supervision of Prof Philip Aston, the principal investigator.

#### Main Responsibilities/Activities

- Select good quality PPG signals for analysis
- Apply the SPAR method to the PPG signals; extract attractor features and generate attractor images
- Use several different machine learning approaches using the attractor features and quantify the model error
- Use several different transfer learning approaches using the attractor images and quantify the model error
- Repeat the machine/transfer learning for various subgroups of the population
- Write up the work done

#### Person Specification

##### The post holder must have:

- Completed their PhD or have submitted their thesis for examination
- Skills and experience of mathematical and/or computational modelling in a physiological or biological context
- Excellent Matlab programming skills
- Excellent communication and presentation skills

#### Relationships and Contacts

The post holder will be supervised by Prof Philip Aston (Mathematics). They will also meet regularly with the other investigators, namely Prof Christian Heiss (Clinical and Experimental Medicine, University of Surrey), Dr Manasi Nandi (Life Sciences and Medicine, King’s College London) and Nikhil Sehgal and Luis Felipe De Deus (Vastmindz).