



Job Title:	Research Engineer
Responsible to:	Head of research group, or principal investigator
Responsible for:	Responsibility for staff within own research group
Job Summary and Purpose	
To plan, deliver and develop research in accordance with the specified research project	
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. 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.</p> <p>Lead and collaborate with the research project team across multiple University and industry partners on joint research challenges and integration to develop new tools and technologies.</p> <p>Pursue and advocate responsible and open research and innovation to ensure ethical, fair and inclusive advances in science, technology and use of data.</p> <p>Continually 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 monitoring of research budgets. To oversee and implement procedures to ensure accurate and timely reporting and financial control.</p> <p>To undertake liaison with external organisations including equipment manufacturers, steering committees, associated academic facilities and commercial users.</p>	
Person Specification	
<p>The post holder must have:</p> <p>Master's degree in electronic engineering, computer science or a related subject, or equivalent professional experience</p>	
Relationships and Contacts	
The post holder will have a key responsibility to the principal investigator, and contribute to reporting and liaison with external funding bodies, industry partners or sponsors.	
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

Job Title:	Research Engineer in Computer Vision and Audio-Visual AI (Research Engineer)
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Job Summary and Purpose:

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

Contribute to the EPSRC Prosperity Partnership in Future Personalised Object-Based Media Experiences led by the University of Surrey with the BBC and Lancaster University.

- (i) Develop novel methods for automatic understanding and reconstruction of real-world audio-visual scenes for transformation of video to audio-visual objects.
- (ii) Develop methods to advance computer vision, audio analysis, machine learning and audio-visual AI for object-based audio-visual content capture, representation and neural rendering.
- (iii) Pro-actively engage with responsible and open research to ensure ethical, fair and inclusive design of computer vision, audio and AI technologies for personalised media experiences.
- (iv) Initiate, plan and lead collaboration with other staff on the project to develop pilot and proof-of-concept systems for object-based capture, representation and neural rendering of personalised media experiences.
- (v) Design and plan the development of tools and technologies to support object-based production of personalised experiences and support their use in production with industry partners and collaborators.
- (vi) Collaborate with other partnership researchers and creative professionals on the research, production and user evaluation of personalised media experiences.
- (vii) Work with other researchers on the partnership to develop research software libraries and systems to facilitate reproducible research and public engagement.
- (viii) Publish and present research in high-quality international journals and conferences.
- (ix) Onsite collaboration with project partners as required to conduct research and integrate tools and technologies for personalised object-based media capture, production and delivery.
- (x) Contribute to participative research engagement events and activities with stakeholders.
- (xi) Meet on a weekly basis with partnership staff, contribute to partnership meetings and present results at other sites as required.
- (xii) Pro-actively organise and manage your own time and research-related activities.
- (xiii) Report orally and prepare papers reporting progress and delivery of project outcomes, and be able to communicate at both technical and high-level for example with project research partners.
- (xiv) Perform any other duties associated with the project, as deemed appropriate to the grade by the Principal Investigator.
- (xv) Promote the research and activities of the partnership and the Centre for Vision, Speech and Signal Processing (CVSSP) in national and international forums.



Main Responsibilities/Activities

- Undertake research and development in computer vision, audio analysis, audio-visual AI of video to object-based representations.
- Lead the design, development and evaluation of deep learning approaches to automated audio-visual understanding of real-world dynamic scenes.
- Meet on a weekly basis on campus with CVSSP staff.
- Attend project meetings and present results at other sites as required.
- Lead collaboration with partners in design and development of tools, production, user-testing and evaluation of technologies for personalised object-based media experiences.
- Give oral and written reports on project progress and outcomes. Report at both a technical low-level and conceptual high-level to a range of audiences including the public and industry.
- Lead the organisation, take part and deliver demonstrations of project progress and outcomes to a range of different audiences at events in-person and online
- Lead and pro-actively engage with open, responsible and inclusive AI research and data.
- Continually update knowledge and develop skills.
- 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 achievement of research objectives and implementing procedures to ensure accurate and timely delivery.

Person Specification

The post holder must have:

- Masters degree in computer vision, audio, machine learning or a related subject
- Track-record of publication in academic forums in computer vision, audio and/or machine learning
- Experience in software development in topics such as computer vision, audio signal processing, machine learning, deep learning, and/or sensor systems.
- Experience of collaboration and technology transfer to partners outside academia.
- Ability to work independently or in a team, excellent organisation and time management.
- Excellent writing and communication for varying levels of technical/non-technical audience.

The post holder would ideally have:

- Skills and experience of development using languages such as Python and C++ with relevant computer vision, signal processing, machine learning and/or deep learning tools (TensorFlow, PyTorch, Keras, OpenCV etc.).
- Experience in securing funding for research in computer vision, audio or machine learning
- A track record of publishing academic papers, open-source software tools and/or datasets.

Relationships and Contacts

Direct responsibility to Principal Investigator Prof Adrian Hilton and Prosperity Partnership Research Stream Leaders. Informal enquiries are welcome and should be directed to Prof Adrian Hilton a.hilton@surrey.ac.uk