

Post Details			
Faculty/Administrative/Service Department	Faculty of Engineering & Physical Sciences (FEPS) Centre for Vision Speech and Signal Processing		
Job Title	Research Software Engineer		
Job Family	Technical and Experimental	Job Level	4
Responsible to	Project Principal Investigator		
<u>Job Purpose Statement</u>			
<p>A full-time Research Software Engineer in AI / ML including computer vision, natural language processing and deep learning. This is an excellent opportunity for an R&D engineer to further develop their software skills within the societally important area of providing communication tools for deaf people, helping to push forward the current state of the art in sign language translation, NLP and generative AI. The engineer will work with data management, AI model training and inference and prediction. They will work collaboratively within an EPSRC funded programme grant ('SignGPT') that aims to build large language models (LLMs) for the automatic translation of British Sign Language.</p> <p>The role will be based in the world leading Centre for Vision Speech and Signal Processing (CVSSP) within the School of Computer Science and Electronic Engineering at the University of Surrey.</p>			
<u>Key Responsibilities</u>			
<ol style="list-style-type: none"> 1. Building and maintaining a Visual Language Toolkit consisting of a software modules for processing video data and supporting sign language curation, annotation, recognition, translation and production. 2. Contribute to deliverables and milestones relating to the technical design and development of the project's architecture and modules. 3. Contributing to iterative deliverables for the projects such as technical reports, software integrations and source code releases, which need to be ready at their prescribed deadlines throughout the project lifetime. 4. Travel for project meetings and dissemination events. 5. Actively liaise with project partners and wider collaborative links across related projects. <p>N.B. The above list is not exhaustive.</p>			
All staff are expected to:			
<ul style="list-style-type: none"> • Positively support equality of opportunity and equity of treatment to colleagues and students in accordance with the University of Surrey Equal Opportunities Policy. • Work to achieve the aims of our Environmental Policy and promote awareness to colleagues and students. • Follow University/departmental policies and working practices in ensuring that no breaches of information security result from their actions. • Ensure they are aware of and abide by all relevant University Regulations and Policies relevant to the role. • Undertake such other duties within the scope of the post as may be requested by your Manager. • Work supportively with colleagues, operating in a collegiate manner at all times. 			
Help maintain a safe working environment by:			
<ul style="list-style-type: none"> • 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. 			
<u>Elements of the Role</u>			
<u>Research and Software Development</u>			
<ul style="list-style-type: none"> • Conduct research and software development within the context of a collaborative research project, comprising of partners from different disciplines. The project will develop approaches to translation between sign language and spoken language and vice versa. It will curate and annotate large bodies of video data, build video based foundational models and contribute to new NLP approaches and LLM development. 			
<u>Continuous Delivery and Improvement</u>			

- The post holder will be responsible for deploying the project's software infrastructure and periodically update its developed codebase in accordance with the technical roadmap and release updates.
- The post holder is expected to be responsible and proactive in resolving issues, identifying solutions and fixes for the deployed software due to feedback from the Use Case deployment or decisions by project consortium regarding changes to requirements.
- The post holder is expected to continuously learn and improve their technical development skills and knowledge about mobile networks.

Accountability

- The post holder is required to document and maintain the project codebase through documentation and version control software (i.e. GitLab, GitHub)
- The post holder is required to develop automation pipelines for software development and machine learning processes and deployment.
- The post holder needs to document software architecture, installation procedures, deployment configurations as well as provide support to peers and third parties requiring information.
- The post holder needs to have a can-do attitude, be proactive and independent and work in coordination and guidance from the Project Investigator and senior peers.

Supplementary Information

- A talent for technical problem-solving is a must. Willingness to work within a multi-discipline research project is a must. You will encounter a wide range of technologies and data and will be given many opportunities to further build on your skills. It is vital that you enjoy exploring new areas and learning new technologies.

Person Specification		
Qualifications and Technical Skills		
Relevant degree (in Computer Science or Electronics Engineering)		E
Technical Competencies (Experience and Knowledge) This section contains the level of competency required to carry out the role (please refer to the Competency Framework for clarification where needed and the Job Matching Guidance).	Essential/Desirable	Level 1-3
Experience with programming in Python in the context of Deep Learning (pytorch) and computer vision (opencv) and demonstrators of these technologies.	E	3
Experience in working in tandem with researchers to implement scaled-up prototypes, open-source releases and demonstrators of research work in the field of AI or Computer Vision.	D	3
Experience in developing workflows for data and metadata management within the context of AI training.	E	3
Experience in AI model development/optimisation and workflows for multi-modal (graph, text) data.	E	3
Experience with tools for source code management, automation pipelines for software development and machine learning processes, and deployment.	E	2
Experience with a wide variety of programming languages C/C++/C#	D	2
Strong critical thinking skills and ability to develop innovative solutions.	E	2
Experience with virtualisation and cloud compute such as Docker/AWS/Google Cloud/Azure.	D	2
Experience with high-performance computing environments such as SLURM	D	2
Ability to communicate effectively and work efficiently within a research and development team.	E	2
Ability to take initiative, learn how to use the necessary tools for the research, and work independently, and collaboratively for integration tasks.	E	2
A PhD in Computer Science, Electronics Engineering, Mathematics, or other closely related area.		D
Contributions to peer-reviewed publications, or other similar output.	D	1
Core Competencies		Level 1-3
Communicator		3
Flexible		2
Team Player		3
Proactive		3
Problem Solver		3
Creative and Analytical Thinker		2
Autonomous		3
<p>This Job Purpose reflects the core activities of the post. As the Department/Faculty and the post holder develop, there will inevitably be some changes to the duties for which the post is responsible, and possibly to the emphasis of the post itself. The University expects that the post holder will recognise this and will adopt a flexible approach to work. This could include undertaking relevant training where necessary. Should significant changes to the Job Purpose become necessary, the post holder will be consulted and the changes reflected in a revised Job Purpose.</p>		

Organisational/Departmental Information & Key Relationships

Background Information

The Centre for Vision, Speech and Signal Processing (CVSSP), part of the Department of Electronic and Electrical Engineering at the University of Surrey, is an International Centre of Excellence for research in Audio-Visual AI and Machine Perception, with 180 researchers, a grant portfolio of £30M (£21M EPSRC) from EPSRC, EU, InnovateUK, charity and industry, and a turnover of £7M/annum.

Research at CVSSP has pioneered new technologies for societal and economic impact, with applications spanning themes including healthcare, security, entertainment, robotics, autonomous vehicles, communication and sensory data analysis. For data, CVSSP addresses the application of AI for the creative industries and we partner with several organisations in this space including the BBC and Adobe. The role is within DECaDE; a large multidisciplinary project led by CVSSP but also involving several other research centres including the business school and cyber security centre at Surrey, as well as the institute for design informatics and law school at Ediburgh University. DECaDE are investigating alternative uses for distributed ledger technology (DLT), including safe online identity, healthcare, and media and data provenance. The new approach of fusing DLT (trusted data) and AI (making sense of that data), is a common thread across all CVSSPs projects in DLT and a unique perspective to this emerging technology pioneered by the University of Surrey and underpinning all of DECaDE's work.

CVSSP has an AI compute facility with 240 GPUs for deep learning and >1PB of high-speed secure storage. National standing is evidenced by sustained EPSRC investment, including two Programme Grants (2013-19, 2015-21), Prosperity Partnership (2021-25), Digital Economy Centre DECaDE (2020-25), three Platform Grants in Audio-Visual Research (2003-08, 2008-14, 2017-22), and as a lead partner of the BBC Data Science and Audio Research partnerships.

The centre has an outstanding track record of pioneering research leading to successful technology transfer with UK industry and spin-out companies. CVSSP also leads the People Centred AI Institute (PAI) interdisciplinary network of over 300 research in AI and machine learning across the University of Surrey.

Department Structure Chart

