

JOB DESCRIPTION

Job Title:	CoSTAR Senior Research Software Engineer (Standards)
Department / Unit:	StoryFutures
Job type	Research – Professional Services
Grade:	RHUL 8
Accountable to:	Director of Technology, CoSTAR National Lab & StoryFutures Head of Technology and CoSTAR Inclusion, Standards and Software Capability Lead.
Accountable for:	None
Purpose of the Post	
<p>The postholder will be working with colleagues to research and develop effective software and tools to inform industry in range of open standards related to emerging creative technologies. As a Senior Research Engineer in our team, you will ensure high quality code is delivered in line with project goals and delivery cycles. The postholder will also contribute to the planning and management of project activities related to the democratisation objectives of CoSTAR.</p> <p>The teams will be developing applications in areas such as AI & Machine Learning; games & 3D development; immersive experiences such as augmented and virtual reality; advanced production technologies such as Virtual Production, Extended Reality; Immersive and Live entertainment. All of these areas require deep research and develop in the field of open standardisation and democratisation of technologies.</p>	
Key Tasks	
<p>Research:</p> <ul style="list-style-type: none"> • Working with the CoSTAR Inclusion, Standards and Software Capability Lead to research and develop software tools and technologies for creative multimedia applications that utilise or evaluate open standards for benefit of all users. • Lead research to deliver recommendations on the best use of open source and open standard technologies relevant to CoSTAR objectives. • Pursue and advocate responsible and open research and innovation to ensure ethical, fair and inclusive advances in creative technology including use of AI and data. • 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. 	

- Contribute to the shaping of the ideas that can be resolved using piloting and prototyping techniques in areas relevant to creative technologies including open-source release of tools.
- Collaborate with the CoSTAR research project team across multiple University and industry partners on joint research challenges and integration to develop new tools and technologies.
- 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 lead responsibility for research projects and identified parts of a large research and development programmes. To make decisions about research project and programme methodologies, in collaboration with colleagues, and to resolve challenges of meeting research objectives, deliverables and deadlines.
- Communicate relevant developments, findings and recommendations in a manner appropriate and effective to the intended audience in university and/or industry context. To take a leading role in the regular reporting, demonstration, dissemination and publication of results in appropriate journals, academic and industry forums, giving presentations at national and/or international conferences, and in other outputs.
- To develop innovative research proposals (as a self-contained item or as part of a broader programme), identifying sources of funding, submitting funding bids, and gaining positive reviews for these. Promoting own area of research.
- Contribute to supervision and mentoring of other researchers including PhD research students in creative technologies.
- Continue to learn new technologies and keep informed of advancements of existing technologies.

Software Development:

- Develop effective software that meets given specifications.
- Test work with validation suites to ensure compliance with standards.
- Review and give feedback on others' code.
- Verify through debugging, troubleshooting and unit testing the correct operation of the produced code.
- Verify operations of the developed software and its integration with other software modules from other partners.
- Write tests using automated test-driven techniques to ensure code quality.
- Integrate the software with monitoring and support tools where appropriate.
- Support system integration in its operating environment.
- Deploy software within the CoSTAR infrastructure and periodically update the developed codebase in accordance with the technical roadmap and release updates.
- Write and review technical documentation.
- Help troubleshoot and resolve issues throughout the life cycle.
- Participate in the team's agile planning and delivery process.
- Contribute to the team's software development methodologies, such as pairing, code and documentation reviewing, and continuous delivery.
- Take responsibility and be proactive in resolving issues, identifying solutions and fixes for the deployed software due to feedback from the use case deployment or decisions by the CoSTAR National Lab. regarding changes to requirements.

Team Working:

- Work with colleagues in the Prototyping Team and the Inclusive Futures Team within the CoSTAR National Lab to develop a culture of excellence, promoting innovation, team-working, and collaboration.
- Contribute to an inclusive and sustainability-aware culture of active staff engagement within the CoSTAR National Lab, across all partners.
- Provide continuous engagement with relevant creative industries partners, helping develop new partnerships and impact activities.
- Participate in departmental hack days and external ad-hoc events (typically 5 to 20 members).

Other Duties

The duties listed are not exhaustive and may be varied from time to time as dictated by the changing needs of the CoSTAR National Lab / University. The post holder will be expected to undertake other duties as appropriate and as requested by their manager.

The post holder may be required to work at any of the locations at which the business of CoSTAR National Lab / Royal Holloway is conducted. There is the potential for out-of-hours support for key CoSTAR National Lab events as required.

Internal and external relationships

The following list is not exhaustive, but the post holder may be required to liaise with some of the following:

- Director of Technology, CoSTAR and StoryFutures.
- CoSTAR Inclusion, Standards and Software Capability Lead.
- CoSTAR Head of Innovation.
- StoryFutures Technical and Producer staff.
- StoryFutures academic staff, particularly research staff and visiting partners.
- Creative Producers, developers and technologists from CoSTAR industry partners.
- CoSTAR consortium partners, including University of Surrey, Abertay University, National Film & Television School, disguise, BT, and Pinewood.
- External Project Partners – Other universities and private sector partners.
- Industrial parties.
- Computer Science Centre and other departments, particularly in Professional Services (IT, Facilities)

PERSON SPECIFICATION

Details on the qualifications, experience, skills, knowledge and abilities that are needed to fulfil this role are set out below.

Job Title: CoSTAR Senior Research Software Engineer (Standards)	Department: StoryFutures		
Knowledge, Education, Qualifications and Training	Essential	Desirable	Tested by: (Application form, Interview, Test)
Educated to degree level in a relevant field (or evidence of equivalent applied Software development experience).	X		Application form
Strong knowledge of the state-of-the-art in software development and of innovation in the discipline.	X		Interview
Strong knowledge in development and application of software standards within software projects.	X		Application form / interview
Detailed knowledge of one or more technical areas of relevance to current projects in CoSTAR, with regard to Creative technologies, Media, Games and / or the creative arts.		X	Application Form / Interview
Skills and/ or Abilities			
Develop Software: Demonstratable ability to use a range of programming languages to develop software applications appropriate for creative industries.	X		Application form / Interview
Engineering: An aspiration for engineering excellence, using knowledge sharing to learn from each other.	X		Interview
Transfer: The ability to define and deliver transferable assets which can make an impact in CoSTAR and/ or wider industry.	X		Interview
Research and investigation skills: The ability to derive deep insight or create novel solutions to a problem using rigorous scientific and engineering analysis	X		Interview
Research expertise: The ability to have both technical and domain level knowledge and understanding of an open source and open standards within software development relevant to Creative Technologies and to share that knowledge to others.	X		Interview

Leadership of self and others: The ability to motivate, inspire and develop yourself and direct other staff and contractors contributing to project work.	X		Interview
Problem Solving: The ability to access and analyse information to define issues and identify appropriate solutions.	X		Interview
Planning & Organising: Strong organisational skills and ability to manage projects and people across multiple tasks on a wide range of projects and ongoing deadlines. Able to effectively manage own workload.	X		Application Form / Interview
Resilience: The ability to maintain personal effectiveness in the face of pressure, setbacks or when dealing with challenging situations.	X		Interview
Communication: The ability to effectively listen, understand and convey messages in a way that is appropriate to the audience with good written and oral communication skills.	X		Interview
Flexibility (adaptability): The ability to respond positively to change.	X		Interview
Experience			
Software Expertise: Significant expertise of one or more of the following software languages: C/C++, Java, Python, and JavaScript. Experience in Machine Learning / AI; API development, databases and open-source software.	X		Application form
Software Expertise: Experience of developing software in cloud-based environments, like AWS or Azure. Experience with Docker/ Kubernetes. Knowledge of the MEAN stack, or similar. Knowledge of game engine development and/or modern graphics APIs (such as Vulkan).		X	Application form
Research Expertise: Experience with programming and/or developing open standards or open formats in creative industries (audio, video, gaming / graphics, web); such as internet (IETF) / web standards (W3C) / Audio-Visual (SMPTE). Knowledge of WebAssembly, HTML5, TTML, WebGL, WebGPU.	X		Application Form
Research Expertise: Experience in software development in areas relevant to inclusion; accessibility and sustainability. Knowledge of Machine Learning model design, development/optimisation and workflows for audio, visual and sensory data.		X	Application Form

Development Expertise: Experience with the end-to-end software development lifecycle (SDLC), including requirements gathering, design, development, testing, deployment and maintenance. Knowledge of writing automated tests and undertaking Test Driven Development (TDD) or Continuous Integration (CI) approach to your work.	X		Application Form / Interview
Domain Expertise: A keen interest in emerging technologies, research, and innovation e.g. XR (Mixed Reality), VR (Virtual Reality), AR (Augmented Reality), Realtime technologies (Virtual Production), AI (Artificial Intelligence).	X		Application Form/ Interview
Other requirements			
A commitment to continuous personal development related to pursuing the state-of-the-art in software engineering.	X		Interview
Commitment to equality, diversity, inclusion, and sustainability in the workplace	X		Interview
Date: 2024			