

Post Details	Last Updated:		
Faculty/Administrative/Service Department	Faculty of Engineering & Physical Sciences (FEPS) Institute for Communication Systems (ICS)		
Job Title	SDN Software Engineer		
Job Family	Technical and Experimental	Job Level	5
Responsible to	Chief Architect		
Responsible for (Staff)	n/a		

Job Purpose Statement

Responsible for providing software development to support network "Softwarisation" and core network evolution research at the 5GIC in support of the 5GIC Test bed and 5G researchers.

The post holder will work as part of a highly experienced multi-access testbed team providing specialised and innovative 5G solutions for both internal and external 5GIC projects under the direction of the Chief Architect.

Key Responsibilities

1. Deliver Software define network protocols code to progress the 5GIC Softwarisation research projects
2. Be responsible for the analysis, development and delivery of specialised 5G related softwarisation systems, services and software in the faculty, using significant creative and analytical skills to provide innovative, high-quality developments.
3. Managing the 5G Softwarisation Development projects, ensuring maximum value is derived from available resources and providing input into the overall project planning process to ensure appropriate levels of resource are available to meet agreed schedules.
4. Be responsible for providing effective and professional technical consultancy services in the field of Softwarisation using a variety of approaches, to derive detailed requirement profiles and ensure that developments meet service quality levels while maximising value and minimising cost.
5. Evaluate failure modes and dependencies to devise system and service monitoring strategies, backup procedures and DR guidelines for new developments to protect against failure and ensure efficient ongoing systems administration and operations activity.
6. Formally Document new Software developments applicable to softwarisation of networks and provide training to clients and colleagues in order to fully exploit their potential and ensure a high ROI.
7. Be responsible for ongoing development of the specialised 5G softwarised infrastructure within ICS 5GIC by identifying shortfalls and providing detailed analysis of current systems/processes, ensuring the continued delivery of innovative R&D that meets the needs of the user while maximising overall efficiency.
8. Liaise with other Testbed team staff, providing specialist advice and guidance where needed to ensure effective transfer of skills/knowledge and compliance with regulations and code of practice. Be involved in systems administration and Installation and Commissioning (I&C) activities as required, for newly developed systems into an established IT administration framework.

N.B. The above list is not exhaustive.

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.
- 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:

- 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.

Elements of the Role

Planning and Organising

- The post holder will be primarily a technical expert but will be required to demonstrate good self-project management skills within a very complex technical environment.
- The post holder will plan and organise their continuous technical software development to ensure alignment with evolving research and development requirements.
- The post holder will be responsible for delivering project plans for their own work and preparing appropriate information to ensure managers, strategic boards and external stakeholders are kept up to date with the relevant milestones of their project work.
- There will be involvement in various aspects of project life-cycle through initial analysis, development, commissioning, testing, documenting, deployment and finally hand-over to the administration team for on-going management and support.

Problem Solving and Decision Making

- The post holder is expected to operate with a high degree of autonomy within their defined project area, with minimum referral to the Chief Architect.
- The work will generally involve developing 5G software solutions in a team-based environment operating in an agile manner to best use the people and HW and SW resources available at the 5GIC and interacting with international partners to integrate solutions across multiple physical sites.
- Resolving potential conflicts in complex individual software projects to maintain alignment with overall 5G Software strategy. This will potentially require resolution of significant technical issues whilst recognising and being sensitive to other project pressures.
- The ability to resolve internal resource and technical issues whilst maintaining positive external relationships is a key part of the role.
- The post holder is required to be a confident communicator as they will need to gain the necessary information from project partners and researchers to progress the project and will need to persuade individuals who they have no authority over to complete tasks to agreed deadlines and within project schedules.
- The post-holder must be capable of making well-judged decisions on how best to allocate their available time to individual projects to best fit with changing strategic priorities.
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Continuous Improvement.

- The post holder will carry out software design work associated with the relevant software to maintain quality of outputs to provide basis for the University to expand its activity with industry partners and other research institutions.
- Ensure that software design elements of the 5G Software are "future-proofed" to facilitate future development in line with the likely rapid evolution of 5G technology.

Accountability

- The post holder will undertake software systems development to deliver first class outputs to industry partners. The post holder will be expected to do this with minimal regular supervision. Typically the post holder will be expected to give formal monthly update summaries to the Catalyst Senior Project Technical Manager.
- The post holder will be responsible for the design and project management of software systems minimal guidance from the Technical Manager. This is an extremely technically demanding role and the post holder will be fully accountable for their technical decisions in this area.
- Must display a professional approach and confident communication style as they represent a major part of the outward face of the University through the highly visible activities of the 5G programme.

Dimensions of the role

- This post is a highly technical and currently unique in the world, which will by definition have to evolve as the project work progresses.
- This post has no staff responsibility.
- This post has no budgetary responsibility.

Supplementary Information

Recent government reports on the HE sector, such as the influential Witty review, have placed emphasis on UK universities acting as “engines of the economy”. Both BIS and HEFCE are developing new funding streams which will increasingly favour high quality research programmes with the capacity for significant economic impact and the 5G IC is considered as an exemplar in this regard.

Person Specification This section describes the sum total of knowledge, experience & competence required by the post holder that is necessary for standard acceptable performance in carrying out this role.

Qualifications and Professional Memberships

Degree level qualification in Electronics or Computing or substantial vocational experience within the field.	E
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Project management qualification or equivalent relevant experience.	E
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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
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Significant recent research and development experience in software development demonstrating progression within the field	E	3
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Significant recent experience on open source software projects include Open Virtual Switch and OpenFlow protocol development.	E	3
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Significant development in Software languages such as Python	E	3
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Solid demonstrable scripting capability in at least 2 of the following languages (PHP, JavaScript/Jscript, Perl, Ruby)	D	n/a
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Experience with at least one of the following Linux operating systems (CentOS, Ubuntu, Red-hat)	E	3
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A working knowledge of key IP-suite protocols used in telecoms (several of: IP, TCP, DNS, DHCP, NAT, SCTP)	E	1
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A working knowledge of cellular networks (eg: LTE)	D	n/a
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A working knowledge of formal Operations and Maintenance controls and procedures.	D	n/a
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Experience of working with UML and structured requirements	D	n/a
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Experience of working on Agile/Scrum teams	D	n/a
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Special Requirements:	Essential/ Desirable
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Must be prepared to travel throughout the UK and internationally	E
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Able to drive and has own car	D
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Core Competencies This section contains the level of competency required to carry out this role. (Please refer to the competency framework for clarification where needed). n/a (not applicable) should be placed, where the competency is not a requirement of the grade.	Level 1-3
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Communication	3
Adaptability / Flexibility	3
Customer/Client service and support	3
Planning and Organising	3
Continuous Improvement	2
Problem Solving and Decision Making Skills	3
Managing and Developing Performance	2
Creative and Analytical Thinking	3
Influencing, Persuasion and Negotiation Skills	2
Strategic Thinking & Leadership	2

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.

Organisational/Departmental Information & Key Relationships

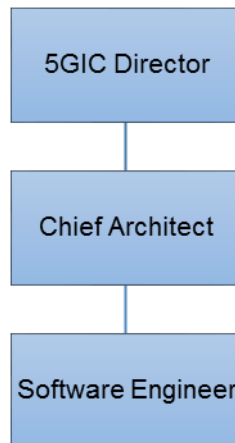
Background Information

The University of Surrey ranks in the top 5 of UK University league tables. The Faculty of Engineering and Physical Sciences has within it a number of leading research groups one of which, the Centre for Communications Systems and Research, has consistently ranked as Europe's leading academic research organisation in the field of mobile telecommunications and internet technologies.

Surrey has now been successful in winning £multi-million bids to HEFCE URPIF and Catalyst in securing the 5G Innovation Centre and Innovation Gateway programmes respectively. The University has also been awarded additional funding from the Enterprise M3 Local Enterprise Partnership to provide additional support both of these programmes. The objective is to create the world's foremost academic research and innovation centre in future mobile communications and internet technologies and in the use of telecom "Big Data" in developing advanced technologies.

The programme includes close collaboration with 17 multinational telecommunications industry partners, all of which have contributed significantly to the R&D programme. Other partners include the Connected Digital Economy Catapult (CDEC) and strong internal University links with the Faculty of Business, Economy and Law (FBEL). The complementary aspect of the Innovation Gateway is Agile Innovation Programme (AIP) which is managed by FBEL.

Department Structure Chart



Relationships:

Internal

The post holder will liaise primarily with the Chief Architect and 5G Testbed team, as well as other staff within the ICS. There will also be a requirement to liaise with support and technical staff within the Faculty of Engineering and Physical Sciences.

External

Development and operation of the software components of the appropriate software will require very significant technical and project management skills as well as dealing directly with 5G Industry partners when required.