Post Details		Last Updated	18/02/2018
Faculty/Administrative/Service Department	Faculty of Engineering & Physical Sciences (FEPS) Institute for Communications Systems (ICS)		
Job Title	Core Network Software Engineer		
Job Family	Technical and Experimental	Job Level	5
Responsible to	Chief Network Architect (ICS)		

Job Purpose Statement

Responsible for the software development of the 5G core network at the 5G>>6G Innovation Centre, the post holder is required to design and develop the 5G core network functions software from 3gpp specifications and to debug and unit test the developed code as well as to maintain periodic release updates according to 3gpp release updates.

Key Responsibilities

1. Producing clean, efficient and reliable code based on 3gpp specifications.
2. Integrate the developed software components and the used third-party libraries with the current codebase in collaboration with the other core network developers.
3. Verify through debugging, troubleshooting and unit testing the correct operation of the produced code.
4. Upgrade existing software based on feedback and 3gpp release updates.
5. Create technical documentation for reference and reporting.
6. Maintain the current systems and correcting software defects as well adding new features.
7. Continually update personal technical skills and knowledge independently.

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

Software Development

- The post holder will be responsible for learning, understanding and gathering requirements from 3gpp technical specifications, in order to translate them into clean, efficient and reliable code.
- The post holder will be responsible for learning, using, maintaining and improving (or creating new of) the current developed frameworks, libraries and tools, to develop the 5G core network functions in C/C++.
- The post holder will be required to coordinate its development with the other 5G core developers, in order to produce interoperable code and to offer developed frameworks that could be useful to other developers.

Software Testing

- The post holder is expected to verify through debugging, troubleshooting and unit testing the correct operation of the produced code.
- The post holder is also expected to verify operation of the developed 5G core network functions in concert with network functions developed by his peers.
- The post holder is required to test his work both with our testbed physical radios and with other testing equipment (e.g. industry standard testing tools).

Continuous Delivery and Improvement

- The post holder is responsible to deploy in CNF/VNF and periodically update its developed codebase in accordance with 3gpp technical specifications CRs and Release updates.
- The post holder is expected to be responsible and proactive in resolving issues, identifying solutions and fixes for the deployed core network due to university project partners changing requirements and radio equipment updates.
- The post holder is expected to continuously learn and improve his technical development skills and knowledge about mobile networks.

Accountability

- The post holder is required to document and maintain its codebase through documentation and version control software (i.e. gitlab), in both production and development for CI/CD pipeline.
- 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 aptitude, be proactive and independent and work in coordination and guidance from the Chief Architect and Core Team Lead.

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 BEIS, HEFCE, DCMS are developing new funding streams which will increasingly favour high quality research programmes with the capacity for significant economic impact and the ICS is considered as an exemplar in this regard.

Person Specification		
Qualifications and Technical Skills		
Relevant degree (in Electronics Engineering or Computer Science)		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
Linux IP Networking (IPv4/IPv6), TCP/UDP, HTTP/S 2.0, Socket Programming	E	3
Operating Systems concepts (e.g. Linux) and Multithreaded Programming	E	3
Knowledge of 3GPP Release 15+ Technical Specifications	D	2
Excellent coding skills (Object Oriented and non) in Linux platform (C/C++)	E	3
Experience in delivery of high-quality software in a planned timeline	E	2
Good understanding of CI/CD and DevOps concepts	D	2
Experience developing Microservices for Kubernetes with Docker Containers	D	2
Knowledge of Go Programming language will be a plus.	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

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 34 of UK University league tables. The Faculty of Engineering and Physical Sciences (FEPS) has within it a number of leading research groups one of which, the ICS, has consistently ranked as Europe's largest and leading academic research organisation in the field of mobile, Satellite and internet technologies.

Surrey has now been successful in winning £multi-million bids to UK Government, UKSA, research council, European Space Agency (ESA) and EC programs in securing the 5G/6G Innovation Centre. The objective is to maintain and evolve the world's foremost academic research and innovation centre in future mobile communications and internet technologies and in the use of telecom "Big Data" and AI in developing advanced technologies towards 6G for 2030+.

The programme includes close collaboration with many multinational telecommunications industry partners, all of which have contributed significantly to the R&D programme.

Department Structure Chart

Director

Chief Architect

Core Network Engineer