JOB DESCRIPTION

<table>
<thead>
<tr>
<th>Job title</th>
<th>R&amp;D Engineer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job family</td>
<td>Research &amp; Development</td>
</tr>
<tr>
<td>Grade</td>
<td>C</td>
</tr>
</tbody>
</table>

**Job purpose**

The BBC’s research and development activities cover developing technology and insights that ensure the BBC stays relevant in the medium to long-term (5-10 years). This involves leading technology change that impacts the whole BBC and the global industry. The solutions developed routinely save the BBC multiple millions of pounds. An R&D Engineer is responsible for conducting R&D activities and helping to transfer results to the wider BBC and industry, in order to identify and solve complex technical problems and carry out groundbreaking research in relevant areas, deliver solutions for the BBC, inform the BBC’s decisions, help create products or services, or to contribute to global standards. This includes collaboration with 3rd parties (such as manufacturers and universities) in order to achieve these goals.

**Key responsibilities and accountabilities**

- Apply creative thinking, analysis and good judgement to propose innovative solutions to technical problems, which may involve a range of diverse approaches
- Produce and test prototype implementations of systems to help answer research questions
- Contribute to the transfer of results of work to the wider BBC, e.g. in the form of systems for operational use or advice, or to wider industry in the form of e.g. inputs to standards bodies, open source software, or licensing to manufacturers, in order to ensure that the work has an impact
- Evaluate technology through activities such as programme trials, lab tests and user tests in order to determine its suitability and effectiveness
- Document results primarily for an audience within their department or wider BBC, with occasional external-facing output such as conference papers and blog posts
- Provide information to help the BBC and its external partners make the best decisions, within own field of expertise
- Collaborate with groups across the BBC and externally on clearly-defined projects to achieve results beyond what would be possible within the local team
- Represent the BBC at events such as exhibitions and demonstrations to explain their work and help with recruitment
- Identify and follow up opportunities for learning and development to ensure skill set meets evolving requirements and stay at the forefront of relevant scientific and technology areas

**Knowledge, skills, training and experience**

**Essential**
• A degree (or equivalent experience) in Computer Science, Electronic Engineering, Maths, Physics, Psychology, Human-Computer Interaction, Data science or a similar relevant science, engineering or technical subject
• Experience of conducting project work involving research, development and/or user testing of technology, including aspects of innovative thinking, problem solving and documenting results in formal written reports, under the guidance of a supervisor.
• Knowledge of current standards and practices in broadcast or software engineering, Human-Computer Interaction and/or behavioural scientific research
• Awareness of emerging trends and developments in relevant technologies
• Capable of highly original work together with an enquiring mind with well-developed analytical and investigative skills
• The judgement necessary to choose the best solution to a complex problem
• Good written and oral communication skills, able to promote ideas by logical argument and capable of presenting the results of a project in a clear and effective manner
• Sound time and resource management skills and be able to lead, motivate and direct support staff and contractors contributing to the project
• Self-motivated, with the drive and initiative to carry out projects according to plan, and the ability to quickly adapt in a fast-changing environment
• Ability to rapidly acquire new skills and to work with new tools and technologies with little documentation or support
• Ability to work as part of a multi-disciplinary team
• Able to travel in UK and internationally on BBC business as required

Desirable
• Detailed knowledge of one or more technical areas of relevance to current projects in BBC R&D

Job impact

Decision making

• Reports to Senior R&D Engineer (or similar role) or above
• Responsible for planning own work within a project defined by a more senior colleague and coordinating work with peers or support staff to meet specified project aims, based on a general approach set out by Senior R&D Engineer (or similar role) or above
• Work reviewed by more senior colleague
• Contribute to team discussions on problem solving and work planning
• Impact of role is mainly internal to the department, although results of project work may contribute to results that are used within the wider BBC or by 3rd parties.
• Most challenging parts of role include identifying the best approach to solving a specified problem and analysing the results of work to draw well-justified conclusions
Scope

Finance: Some discretion over small amounts (<10k) of budget spend within defined project area to meet specified project aims, with ability to make recommendations about larger spend.

Line management: Provide occasional guidance and supervision to a junior colleague or student to meet specified project aims; no formal line management, but may include mentoring.

Ad-hoc teams: May participate in teamwork outside the main project team, such as hack sessions with 4-6 members of other project teams, or as a member of a team in a collaborative project, with up to around 20 academics or engineers from outside the BBC.

Other information

For Reward team use only

| Job Code | Content / Content Support / Support |

This job description is a written statement of the essential characteristics of the job, with its principal accountabilities, incorporating a note of the skills, knowledge and experience required for a satisfactory level of performance. This is not intended to be a complete, detailed account of all aspects of the duties involved.
Appendix

There may be sub-sets of the generic job described above which require additional technical skills. This appendix to the generic job description can be developed to cover such situations.

| Division | R&D |
| Location base | London, W12 |

**Organisation structure**

BBC R&D has a worldwide reputation for contributing to, and leading, the engineering, research and development of many of the key broadcast and media technologies. The research work is mainly on new technologies which are expected to be rolled out over a 1 to 5 years timescale and require both in depth theoretical knowledge and a practical approach to potential deployment. BBC R&D is based in two main labs, one in London and one in MediaCityUK, Salford.

**Additional job specific responsibilities and accountabilities**

**Essential**

- Experience of, or a strong demonstrable interest in, broadcast engineering, IP media distribution or smart/hybrid TV application technologies and middleware.
- Awareness of issues around broadcast engineering, IP media distribution or TV device architecture and middleware such as:
  - using IP technology in broadcast-critical environments
  - coding and distribution of media over broadcast and/or IP
  - smart TV device architecture and design
  - viewer facing content description models and system level metadata flows
- Creative flair to envisage how technology could be improved and to invent new things, together with analytical skills and an attention to detail to tackle difficult problems.
- Some experience of software development (Java, JavaScript, Python)
- A desire to learn new skills.

**Desirable**

- Working knowledge of one or more of DVB systems and associated systems engineering, including MPEG-2 and MPEG-4 video compression, audio compression and multiplexing or systems used to create and distribute accessibility features (subtitles, audio description)
- Knowledge of TV industry standards for content distribution or viewer facing application technologies