

**Job Description**

<b>Job Title:</b>	Research Assistant / Associate (Software Engineer)
<b>Department/Division/Faculty:</b>	Department of Computing, Faculty of Engineering
<b>Campus location:</b>	South Kensington, London
<b>Job Family/Level:</b>	Research, Research Associate / Assistant
<b>Responsible to:</b>	Dr Dalal Alrajeh
<b>Key Working Relationships (internal):</b>	Supervisor and other members of the Department including academic staff and students.
<b>Contract type:</b>	Full-time, fixed-term to start ASAP for 12 months, with the possibility of extension until 31/03/2024.

**Purpose of the Post**

While machine-learning enabled systems have witnessed huge advances in recent years, concerns surrounding their adequacy and safety have also grown, for instance in the context of high-risk, decision making. The inclusion of human agents in their design (to provide oversight and control) has been often considered as a reasonable solution for overcoming such concerns. However, ensuring the safe design for human-in-the-loop machine-learning enabled systems remains an open challenge that requires rigorous integration of methods from software engineering, machine learning and human-computer interaction.

We are seeking a research software engineer to support the design and development of a human-in-the-loop machine-learning enabled systems for deployment in the Policing domain. The post-holder will be part of a multidisciplinary team investigating ML-enabled systems for tackling online child sex offending. The post-holder will thus have the opportunity to develop her/his expertise on dissemination of research through interactions with other researchers in Forensic Psychology and Linguistics, and with end-users.

The successful candidate will join a multidisciplinary team of academics and researchers from Aston University, University of Bath, University of Birmingham and Imperial College London.

The post-holder will liaise closely with stakeholders and researchers to understand their requirements before working with them and other members of the team to guide the design and implement appropriate solutions. She/he will have access to the research software engineering team for additional support in the selection of appropriate technologies but will be expected to take responsibility for their own work and routinely make technical decisions.

The role presents an opportunity to actively participate in research, applying innovative technologies to diverse and meaningful challenges. It will suit a well-organised and open-minded engineer keen to participate in a broad variety of software development and data science projects in a multidisciplinary team.

**You need to have lived in the UK for the 3 of the last 5 years as this position requires national security vetting with a requirement to obtain and maintain Security Check clearance: [Security Check clearance](#).**

**For this reason, upon offer, the post-holder must be prepared to go through vetting.** The continuation of the contract is conditional on a successful vetting outcome. Please check the above link before application to ensure that you meet the criteria. Please note that for non-UK nationals the process might take longer.

**Key Responsibilities**

## Job Description

- To develop software solutions fit for non-expert use.
- To work with the team and crime analyst end-users towards a safe, trusted and regulatory-compliant maintainable software solution.
- Identify and capture user requirements and deliver solutions to ensure they are met
- Re-use existing knowledge and software to address novel research challenges, building prototypes where appropriate
- Collaboratively select appropriate technology and design systems for reliability and maintainability
- Employ best-practice approaches to software engineering, including testing, issue tracking and version control
- Work closely with other developers and domain experts
- Develop and/or deploy tools, infrastructure and approaches for natural language processing and machine learning
- Develop for web-based platforms using the most relevant tools and languages e.g. JSON, XML, java-script.
- Write and maintain documentation to support ongoing use and development of the software.
- Maintain highly organised and accurate record of experimental Work.
- Effectively communicate progress, including regular reports.
- Work to agreed deadlines and prioritise day-to-day tasks appropriately.
- Maintain an awareness of technical developments, tools and ideas in research computing and in software engineering, including attending seminars, conferences and other community events.
- To assist with the writing of documents to research sponsors, grant agencies and publications.
- To present findings to researchers, crime analysts, police forces, users, government, societal and industrial communities as appropriate.
- To support public engagement activities promoting the project or research area .
- To develop contacts within the College and the wider community .
- To promote the reputation of the team and the College.

### Other Duties

- Undertake any necessary training and/or development
- Undertake appropriate administration tasks
- Attend relevant meetings

## Person Specification

<b>Requirements</b>	<b>Essential (E)/ Desirable (D)</b>
Candidates/post holders will be expected to demonstrate the following	
<b>Education</b>	
Research Assistant Level - Undergraduate degree (or equivalent) or Masters degree (or equivalent) in a relevant subject	E
Research Associate Level - A PhD (or equivalent experience) in a relevant area *Candidates who are close to completion of their PhD will be appointed at Research Assistant level.	D
<b>Experience</b>	
Experience of analysing, researching and solving complex programming problems	E
Full-cycle software development, including design, implementation and deployment	E
Significant involvement in a least one substantial software project using relevant technologies	E
Experience of writing software as part of a team	E
Expertise of working as a researcher and/or developer in an academic environment, or developing software to support research in industry	D
<b>Knowledge</b>	
Demonstrable knowledge of languages commonly used for research computing: Python and R or MATLAB	E
Knowledge of best-practice techniques for software development including testing, build automation and continuous deployment, and the use of containers	E
Practical knowledge of machine learning and statistical tools	E
Practical experience of natural language processing tools	D
Use of at least one relational database system and of authoring complex SQL queries	E
Knowledge of tools for developing graphical user interfaces	D
Experience using Windows-based operating systems, tools and utilities	D
Full-stack web development using HTML/JavaScript/CSS	E
Understanding of suitable approaches to large scale data storage and analysis, including relevant preparation, processing and visualisation techniques.	D
Experience of high-performance computing using appropriate parallel/distributed compute technologies, numerical methods and hardware platforms, including GPUs	D
Knowledge of at least one commonly used cloud ("IaaS") platform (e.g. AWS)	D
<b>Skills &amp; Abilities</b>	
Excellent written and verbal communication skills including the ability to effectively present complex or technical information to a range of audiences	E
Creative approach to problem-solving	E
Ability to work proactively and autonomously but with a willingness to seek advice where necessary regarding software design and implementation	E
Rigorous time management and prioritisation skills	E
Intellectual flexibility and a curiosity in unfamiliar disciplines	E
Ability to assimilate technical information, understand complex requirements, and keep up-to-date and learn about new technologies and developments in computational research	E
Serious commitment to software quality and a very strong attention to detail	E
<b>Other</b>	
Discipline and regard for confidentiality and security at all times	E
Willingness to undertake any necessary training for the role	E
Willingness to travel within the United Kingdom to conduct research and attend meetings	E
Willingness to work out of normal working hours (including weekends) if the requirements of the project demand	E
Willing to undergo security vetting by the National Crime Agency	E

## Job Description

Has lived in the UK recently for 3 years (for vetting purposes)	E
Already undergone successful security vetting (SC clearance) by a UK government agency	D

Please note that job descriptions cannot be exhaustive, and the post-holder may be required to undertake other duties, which are broadly in line with the above key responsibilities.

Imperial College is committed to equality of opportunity and to eliminating discrimination. All employees are expected to follow the [Imperial Values & Behaviours framework](#). Our values are:

- Respect
- Collaboration
- Excellence
- Integrity
- Innovation

Employees are also required to comply with all College policies and regulations paying special attention to: Confidentiality, Conflict of Interest, Data Protection, Equal Opportunities, Financial Regulations, Health and Safety, Information Technology, Smoking, Private Engagements and Register of Interests. They must also undertake specific training and assume responsibility for safety relevant to specific roles, as set out on the [College Website Health and Safety Structure and Responsibilities](#) page.