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Senior Software Developer - Python AI ML Specialist

Registers of Scotland

Apply before 11:55 pm on Sunday 8th March 2026



Reference number

450440

Salary

£58,252 - £68,586

The base salary for this role is £48,544-£57,155. This job qualifies for Digital, Data and Technology Annual Pay supplement 20% is included in the total remuneration above.

A Civil Service Pension with an employer contribution of 28.97%

Job grade

Senior Executive Officer

Contract type

Permanent

Business area

RoS - Corporate - Digital

Type of role

Information Technology

Working pattern

Flexible working, Full-time

Number of jobs available

2

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Location

Hybrid working model. Contractual base either at Meadowbank House, Edinburgh (EH8 7AU), or St Vincent Plaza, Glasgow (G2 5LD). You will be expected to attend one of these locations as required by the role.

About the job

Job summary

Total remuneration: £58,252-£68,586

Pay Supplement: The base salary for this role is £48,544-£57,155. This job qualifies for Digital, Data and Technology Annual Pay supplement 20% is included in the total remuneration above.

Pension: 28.97% of base salary (RoS contribution)

Annual leave: 38 days annual holiday, increasing to 42 days with length of service

Duration: Permanent

Working Pattern: 35 hours per week. We are a flexible employer and will consider a variety of working patterns on a case-by-case basis. For example, compressed hours, term-time working or part-time working.

Location: Hybrid working model. Contractual base either at Meadowbank House, Edinburgh (EH8 7AU), or St Vincent Plaza, Glasgow (G2 5LD). You will be expected to attend one of these locations as required by the role.

Grade: Senior Executive Officer (SEO)

Closing date: 8 March at 11.59pm

Number of vacancies: 2

Registers of Scotland (RoS)

Join an award-winning organisation recognised for its technology and innovation. Registers of Scotland is a world-leading pioneer in land and property registration. Our full-stack teams design, architect, and build all our registration products in-house. We work to create digital solutions for the people of Scotland. You will get an opportunity to nurture your creativity and develop with us through access to the latest data, software engineering and product delivery techniques.

Job description

The Role

This post sits within the Senior Software Engineer job family and provides specialist expertise in Python and AI/ML engineering day-to-day. In this role, you will design, build, maintain and support robust software solutions that underpin our digital products and internal services. You will be responsible for developing and operating scalable data pipelines, APIs and cloud-native

infrastructure, and for applying AI/ML techniques, including OCR, large language models and computer vision, to automate processes and improve efficiency.

Working across the full delivery lifecycle, you will contribute to discovery, design, implementation, testing, deployment and ongoing support. You will collaborate closely with multidisciplinary teams, ensuring solutions are secure, reliable, maintainable and aligned to architectural and engineering standards, while continuously improving performance and user outcomes.

On a typical day you will

- Design, build, and operate scalable ETL and data pipelines handling structured and unstructured data for AI/ML workloads.
- Develop and maintain robust API services, including FastAPI, RESTful APIs, WebSockets, model-serving endpoints, integrating AI/ML capabilities with existing digital platforms.
- Implement authentication/authorisation using JWT, OAuth 2.0, API keys, and maintain API versioning and documentation.
- Deploy and operate cloud-native infrastructure using AWS Lambda, S3, RDS/Aurora, SQS, IAM, CloudWatch, with infrastructure-as-code tools: CDK, Terraform, CloudFormation.
- Containerize applications using Docker, orchestrate with Kubernetes (EKS/ECS), and maintain automated CI/CD pipelines.
- Implement monitoring and observability using CloudWatch, Grafana, telemetry frameworks, including experiment tracking tools like MLflow and Weights & Biases.
- Research, prototype, and implement AI/ML solutions using Transformers/Hugging Face, PyTorch, OpenCV, PIL/Pillow, YOLO, including LoRA/QLoRA fine-tuning, RLHF, and multi-modal AI/ML systems.
- Collaborate with team members to optimize platform and AI/ML workflow performance, reliability, and scalability.
- Ensure compliance with security, accessibility, performance, and operational standards.
- Participate in agile ceremonies, contribute to team knowledge-sharing, and support process improvements.
- Support disaster recovery procedures and maintain high-availability, resilient system standards.

Person specification

Key Responsibilities

Essential Criteria Skills and Attributes for Success

Technical:

We will assess you against the following Technical and Experience criteria during the application and assessment process:

- Python 3.9+, object-oriented programming, async/await, decorators, context managers, structured logging, pytest, performance optimization.
- Data processing: Pandas, NumPy, SQL, SQLAlchemy/psycopg2, ETL orchestration (Apache Airflow, Dagster, Temporal.io).
- AI/ML frameworks: Transformers/Hugging Face, PyTorch, OpenCV, PIL/Pillow, YOLO; model fine-tuning (LoRA/QLoRA), RLHF, experiment tracking (MLflow, Weights & Biases).
- Web/API development: FastAPI, RESTful APIs, WebSockets, authentication/authorisation (JWT, OAuth 2.0, API keys), API versioning, documentation, model-serving endpoints.
- Cloud & DevOps: AWS Lambda, S3, RDS/Aurora, SQS, IAM, CloudWatch; infrastructure as code with CDK, Terraform, CloudFormation; Docker, Kubernetes (EKS/ECS); CI/CD pipelines.
- Monitoring & Observability: CloudWatch, Grafana, telemetry frameworks for production systems.
- System Design: Event-driven and microservices architectures, high availability, resilient systems, multi-modal AI/ML systems.
- Professional software engineering practices: Git workflows, unit/integration testing, code review, agile delivery (Scrum/Kanban).

Experience

- Developing production-grade AI/ML and data platforms, ensuring reliability, maintainability, and performance for public sector services.
- Designing, building, and operating scalable ETL/data pipelines handling structured and unstructured data.
- Delivering secure, cloud-native AI solutions, integrating with existing infrastructure, managing lifecycle via IaC.
- Developing, supporting, and integrating APIs and microservices, including AI/ML model-serving endpoints.
- Deploying and operating containerized applications in production, with

automated CI/CD and environment management.

- Implementing monitoring, alerting, and incident response processes for production systems, including AI/ML services.

- Applying professional software engineering practices collaboratively in multidisciplinary teams to deliver services iteratively.

Behaviours

You will be assessed against all Behaviours at assessment stages:

Managing a Quality Service

Takes responsibility for the design, delivery, and ongoing operation of secure, resilient, and high-performing AI/ML platforms, implementing monitoring, incident management, and continuous improvement to ensure services consistently meet user needs and agreed service levels.

Working Together

Works collaboratively within multidisciplinary teams, partnering with engineers, architects, and stakeholders to translate business and technical requirements into practical AI/ML solutions, sharing knowledge and contributing to collective delivery outcomes.

Delivering at Pace

Plans and delivers complex AI/ML technical work across multiple priorities, using automation, CI/CD, and agile practices to release reliable platform capabilities quickly while managing risk and maintaining service stability.

Benefits

Alongside your salary of £58,252, Registers of Scotland contributes £16,875 towards you being a member of the Civil Service Defined Benefit Pension scheme. [Find out what benefits a Civil Service Pension provides.](#)

This job is for you if you want

Work with purpose: working for the people of Scotland to set the bar for land and property registration worldwide.

Flexible and hybrid working: depending on the role and team requirements, work when and where it's best for you and your stakeholders.

Benefits: enjoy pay progression, pension contributions of up to 28.97%, up to a year's parental leave, and 38 days annual holiday, increasing to 42 days

with length of service.

Investment in professional development: we invest in all our people so that they have the right skills to be productive and confident in their job.

Diversity and Inclusion: We are an Investor in People and a Disability Confident employer. We are inclusive, stronger together, and committed to putting our people first.

Positive work culture: RoS is an agile, digital organisation using leading-edge technology. Colleagues understand their role in achieving our strategy and have the autonomy to deliver.

To learn more about RoS and what we offer visit our [careers](#) pages or [watch this short video](#).

Hear from our colleagues about their experience of working within our Digital, Data and Technology teams [on our website](#).

Our Tech stack

Backend: Python 3.9+, FastAPI, async/await, OOP

Data: Pandas, NumPy, SQL, SQLAlchemy, psycopg2, Apache Airflow, Dagster, Temporal.io

AI/ML: Transformers (Hugging Face), PyTorch, OpenCV, PIL/Pillow, YOLO, LoRA/QLoRA, RLHF, MLflow, Weights & Biases

DevOps: AWS, CI/CD, Docker, Kubernetes (EKS/ECS), Infrastructure as Code (CDK, Terraform, CloudFormation)

AWS: Lambda, S3, RDS/Aurora, SQS, IAM, CloudWatch

Monitoring & Architecture: Grafana, telemetry frameworks, event-driven and microservices architectures

Things you need to know

Artificial intelligence

Artificial intelligence can be a useful tool to support your application, however, all examples and statements provided must be truthful, factually accurate and taken directly from your own experience. Where plagiarism has been identified (presenting the ideas and experiences of others, or generated by artificial intelligence, as your own) applications may be withdrawn and internal candidates may be subject to disciplinary action. Please see our

[candidate guidance \(opens in a new window\)](#) for more information on appropriate and inappropriate use.

Selection process details

Stage one - Application Process

To apply, click on '**Apply now**' and complete the online application form.

You will need to submit:

- **A CV** outlining your career history and how you meet the technical/experience criteria (max 4 pages).
- **Responses to the applications questions** explaining how you meet the required **technical/experience aspects of the role** (maximum **200** words per answer in the spaces provided).

Please note:

- If we receive a high volume of applications, we may complete an initial sift on **technical/experience criteria**, as evidenced by your responses to the questions
- Applications that are not accompanied by CVs or responses exceeding 200 words per question will not be considered.
- We would strongly recommend that your statement is written in the **STAR format** (Situation, Task, Action & Result) and preparing your answers using software such as MS Word or Google Docs, and then uploading the file.
- We strongly advise you review our policy on **responsible use of AI** in the application process. RoS may check answers with an AI detection tool and will contact you for a pre-screening call to verify your responses.
- Applications and appointments are subject to a strict merit-based assessment

Stage two Virtual assessment

If your application is successful, you'll be invited to an online **behaviour/technical interview** where you'll be assessed on the following essential criteria:

- Working Together
- Technical

Candidates who are successful at the first stage will progress to the final stage assessment in merit order, in line with the UK Civil Service recruitment principles.

Stage three In person assessment

If successful at first stage assessment, you will be invited to an in-person interview which will include the following:

- Behaviour and Experienced based interview (assessing the Managing a Quality Service, Delivering at Pace and Experience Criteria)
- Technical Assessment

Recruitment Timeline:

Close: 8 March at 11.59pm

Sift: w/c 9 March

Stage 1 Assessment: 16-19 March

Final Stage Assessment: 25-27 March

Information on Success Profiles

For further information on success profiles, visit our [Success Profiles](#).

Feedback

Feedback will only be provided if you progress to interview stage.

Reserve List

In the event that further posts are required, a reserve list of successful candidates will be kept for up to 12 months.

Nationality and immigration status

In general, only nationals from the following countries (and associations of countries) are eligible for employment in the Civil Service: the United Kingdom, the Republic of Ireland, and the Commonwealth. EU nationals (with settled or pre-settled status), certain EEA nationals, Swiss and Turkish nationals are also eligible for employment. Detailed provisions on determining eligibility on the grounds of nationality and, where relevant, immigration status can be reviewed [here](#).

Security

Successful candidates must undergo a [Level 1 Disclosure](#) check.

Individuals working with government assets must complete baseline personnel security standard checks.

Equality, diversity and inclusion

As a proud member of the Disability Confident Scheme, we welcome applications from disabled candidates. We're not as diverse as we'd like yet, and we're working on it. We especially welcome applications from underrepresented groups – people who are disabled, minoritised ethnic groups, and younger people (16-24 years of age). To learn more please see our EDI strategy.

As part of the application process, we would like to invite you to please complete our diversity monitoring form. This information is not shared with recruitment panels.

If you require any adjustments to our recruitment process, please let us know via talent@ros.gov.uk. Please see this page for more information on adjustments.

DDaT supplement

This post is part of the Digital, Data and Technology profession (DDaT) and attracts a pay supplement. This is a tool which RoS uses to benchmark our salaries against current market rates. A review of the benchmark is undertaken every two years, this means that the supplement may go up or down depending on market activity. Advance notice will be given of any changes.

Further information

For further information relating to RoS, including:

- Additional details on pay & benefits
 - The Civil Service Code
 - Complaints process
 - Use of AI in the application/recruitment process,
- Please view our additional information page online.

If you have any questions, please contact talent@ros.gov.uk

Feedback will only be provided if you attend an interview or assessment.

Security

Successful candidates must undergo a criminal record check.

People working with government assets must complete [baseline personnel security standard \(opens in new window\)](#) checks.

Nationality requirements

This job is broadly open to the following groups:

UK nationals

nationals of the Republic of Ireland

nationals of Commonwealth countries who have the right to work in the UK

nationals of the EU, Switzerland, Norway, Iceland or Liechtenstein and family members of those nationalities with settled or pre-settled status under the [European Union Settlement Scheme \(EUSS\) \(opens in a new window\)](#)

nationals of the EU, Switzerland, Norway, Iceland or Liechtenstein and family members of those nationalities who have made a valid application for settled or pre-settled status under the European Union Settlement Scheme (EUSS)

individuals with limited leave to remain or indefinite leave to remain who were eligible to apply for EUSS on or before 31 December 2020

Turkish nationals, and certain family members of Turkish nationals, who have accrued the right to work in the Civil Service

[Further information on nationality requirements \(opens in a new window\)](#)

Working for the Civil Service

The [Civil Service Code \(opens in a new window\)](#) sets out the standards of behaviour expected of civil servants.

We recruit by merit on the basis of fair and open competition, as outlined in the Civil Service Commission's [recruitment principles \(opens in a new window\)](#).

The Civil Service embraces diversity and promotes equal opportunities. As such, we run a Disability Confident Scheme (DCS) for candidates with disabilities who meet the minimum selection criteria.

Diversity and Inclusion

The Civil Service is committed to attract, retain and invest in talent wherever it is found. To learn more please see the [Civil Service People Plan \(opens in a new window\)](#) and the [Civil Service Diversity and Inclusion Strategy \(opens in a new window\)](#).

Apply and further information

Once this job has closed, the job advert will no longer be available. You may want to save a copy for your records.

Contact point for applicants

Job contact :

Name : talent@ros.gov.uk

Email : talent@ros.gov.uk

Telephone : talent@ros.gov.uk

Recruitment team

Email : talent@ros.gov.uk

