



**Sainsbury Wellcome Centre**

**Research Software Engineer – Behaviour and Neural Data  
Information for Candidates**

**Sainsbury Wellcome Centre  
&  
Gatsby Computational Neuroscience Unit**



**Sainsbury Wellcome Centre for Neural Circuits and Behaviour at UCL**



<b><u>Job description</u></b>	<b><u>3</u></b>
<u>About the Sainsbury Wellcome Centre and Gatsby Computational Neuroscience Unit</u>	<u>3</u>
<u>The Role of the Research Software Engineer</u>	<u>4</u>
<u>Main Duties and Responsibilities</u>	<u>5</u>
<b><u>Selection Criteria</u></b>	<b><u>7</u></b>
<b><u>Contact Us</u></b>	<b><u>8</u></b>
<b><u>How to Apply</u></b>	<b><u>8</u></b>
<b><u>Terms of Appointment</u></b>	<b><u>9</u></b>



## JOB DESCRIPTION

<b>Vacancy Reference:</b>	1877801
<b>Job Title:</b>	Research Software Engineer – Behaviour and Neural Data
<b>Department:</b>	Sainsbury Wellcome Centre & Gatsby Computational Neuroscience Unit
<b>Salary:</b>	£45,610 - £53,757 per annum inclusive of London Allowance. We offer a competitive benefits and salary package, negotiable for an exceptional candidate.
<b>Grade:</b>	8
<b>Hours:</b>	36.5 per week (full-time, 1.00 FTE)
<b>Reports to:</b>	Head Research Engineer, Sainsbury Wellcome Centre
<b>Available until:</b>	Funded until 31 October 2025 in the first instance.

### About the Sainsbury Wellcome Centre

The [Sainsbury Wellcome Centre](#) (SWC) brings together world-leading scientists to investigate how brain circuits process information to generate perception, form memories and guide behaviour. Developed through the vision and partnership of the Gatsby Charitable Foundation and Wellcome, and with substantial investment from these partners, the mission of the SWC is to generate experimentally testable theories of brain function.

SWC comprises 12 highly interdisciplinary experimental research groups accommodated in a new, purpose-designed building, offering an outstanding and unparalleled research environment. SWC scientists use a broad spectrum of the latest advances in molecular and cellular biology, imaging, and advanced neural and behavioural recording techniques, in order to explain how animal behaviour arises from activity in neural networks. Scientists at SWC enjoy state-of-the-art research laboratories, cutting-edge scientific equipment, technologically-advanced prototyping and fabrication laboratories and custom in-house high-performance computing facilities. The full complement of scientists in the Centre is expected to reach around 150 together with circa 50 dedicated support staff.

### About the Gatsby Computational Neuroscience Unit

The Gatsby Computational Neuroscience Unit (GCNU) was created at UCL in July 1998 with funding from the Gatsby Charitable Foundation. The Unit has become a world-class centre for theoretical neuroscience and machine learning. Its core strengths are in computationally and probabilistically oriented theoretical neuroscience and in probabilistic and statistical machine learning. In neuroscience, we have contributed to the understanding of neural coding, dynamics and computation, to reinforcement and unsupervised learning, and to normative models of behaviour. As a high profile, international research centre, the Unit has in place extensive visitor, seminar and workshop programmes.

The Unit's co-location with SWC creates the potential for a uniquely close interaction between theory and experiment in neuroscience, and for the integrated study of perception, control and learning in natural and artificial systems. These interactions are supported by connected PhD programmes, a joint postdoctoral fellowship, shared staff, and frequent formal and informal interactions amongst investigators.

SWC and GCNU are most closely linked with the UCL Faculties of Brain Science and Life Sciences and are aligned with Life Sciences (LMS). The LMS leadership team works closely with SWC and GCNU leadership to support and enable their mission and facilitate research excellence.

### The Role of the Research Software Engineer

SWC and GCNU seek to extend their mission by establishing a new Data Centre, with a technical team whose role will be to translate and adapt novel machine learning tools as well as neural and behavioural data analysis technologies into robust, scalable, open and useable software applications and platforms suitable for use by collaborators and by a wider audience. The Research Software Engineer will play a key role in this new team.

The Neuroinformatics Unit team will develop software tools needed for research within the two research centres, including imaging, electrophysiology and behavioural control, data processing and archival, as well as analysis tools. The team will also translate and adapt novel machine learning and neural analysis technologies developed in the course of SWC & GCNU research, along with key technologies developed elsewhere, into robust, scalable, open software for use by the global community.

We are looking for an experienced, hands-on and creative RSE to help establish and develop the Unit. You will assist in the identification of software requirements within the institutes and within the wider scientific community. You will work with academic and research staff, end-users and industrial partners to design, adapt, implement, document and publish these software systems. You will also work closely with our IT team to create data management workflows for internal users and for sharing of data with international research community.

Tools generated by the Neuroinformatics Unit will be of interest to a wide group of academic and industrial partners. Software developed will be high quality, with a focus on robust, well tested code and ease of adoption for the end user including comprehensive documentation and tutorials. The majority of software developed will be open-source which may include integration with existing frameworks (e.g. Bonsai, BrainGlobe, napari, tensorflow etc.)

Throughout the work, the post-holder will also have opportunities to become involved in the research programmes at the two Centres, assisting with and contributing to ongoing research projects.

This post is funded until 31 October 2025 in the first instance.

### Main Duties and Responsibilities

#### Software design and implementation

- Work with scientists, engineers and IT experts from SWC and GCNU to design and implement robust software platforms, in order to build new architectures for data storage, querying and analysis.
- Design and develop software for implementation of novel machine-learning and data analytic algorithms, and to make them accessible for collaborators and end-users.
- Provide documentation of the design, specification and implementation of the software, suitable for developers seeking to maintain or extend it.
- Provide high-quality software documentation to enable the widest adoption by the research community
- Advise on the computational hardware necessary for the efficient operation of the software.
- Work with collaborators and end users to adapt data formats, interfaces and algorithms to address their needs.
- To keep up to date with developments in relevant methods, tools and frameworks by the neuroscientific and open-source software communities.

#### Communication/teamwork

- Work closely with SWC and GCNU principal investigators, researchers, research students



## JOB DESCRIPTION

and engineers sharing knowledge and advice.

- Liaise with experimentalist collaborators on data storage formats and curation, to help streamline analysis pipelines.
- Liaise closely with existing IT support staff in the Centre.
- Provide support and cover to colleagues in the team, sharing knowledge and expertise to help solve problems.

### Research

- Engage with research scientists at SWC and GCNU to help design experiments and analyse neural and behavioural data.
- Engage with ongoing machine learning and neural data analysis research at SWC and GCNU.
- To proactively identify computational approaches that could be improved and initiate new projects to aid ongoing research.
- Work with collaborators within and outside the Centre to adapt existing algorithms to new contexts.

### Training and Support

- Work with other members of the team to design and deliver computational training courses suitable for audiences with varies levels of computational experience.

### Other

- Commitment to continued professional development by attending and participating in relevant training programmes.
- Attend research seminars pertinent to the post as designated by the Head Research Engineer and SWC/GCNU Principle Investigators.

You will be expected to actively follow all UCL policies and procedures including Equal Opportunities, maintain an awareness of Fire and Health & Safety Regulations, carry out duties in a resource efficient way as well as actively support

UCL's Sustainability policies and objectives, attend management meetings and undertake such training and development as may be required for the post.

You must ensure organisational compliance, and conformance with the Data Protection Principles. All data, whether stored electronically or by other means must be processed in accordance with the General Data Protection Regulations 2018.

All staff are required to act professionally, co-operatively and flexibly in line with the requirements of the post.

The above description is not exhaustive, and you will be required to undertake any other duties as may reasonably be requested within the scope, spirit and purpose of the post. Job descriptions are reviewed on a regular basis including at the annual appraisal. As duties and responsibilities change, the job description may be amended in consultation with you.



# PERSON SPECIFICATION

## Selection Criteria

The selection criteria outline the skills, knowledge and experience required in order to perform this role. Applicants will be selected based on how well they demonstrate that they meet the essential, and if appropriate, desirable criteria for this particular role.

	Essential	Desirable
<b>Qualifications</b>		
Undergraduate degree in neuroscience, computer science, physics, mathematics, biology or a related field.	Essential	
Postgraduate degree in neuroscience, computational biology, physics, computer science, machine learning or a related field.		Desirable
<b>Knowledge and experience</b>		
Substantial experience developing software for data acquisition, analysis or visualisation (evidenced by successful project completion).	Essential	
Substantial experience and knowledge of software development best practice including testing, documentation and version control.	Essential	
Significant knowledge of at least one programming language used in research (e.g. Python, Julia, C++, Java, MATLAB, R) and experience of at least one other).	Essential	
Experience working with timeseries, spatial or imaging data.		Desirable
Experience working in a scientific research environment.		Desirable
Experience designing and deploying database management systems (e.g. in SQL or one of its derivative languages) and APIs for interfacing them with other programming languages.		Desirable
Experience of applying modern machine learning (including deep learning) frameworks (e.g. scikit-learn, TensorFlow, PyTorch).		Desirable
Experience creating and/or delivering training courses.		Desirable
Experience publishing open-source software and a familiarity with licensing.		Desirable
<b>Skills and abilities</b>		
Ability to proactively identify areas for improvement and initiate new projects.	Essential	
Ability to rapidly acquire a working knowledge of new programming languages, frameworks and libraries.	Essential	
Ability to work with a team of scientists and research engineers to achieve defined outcomes.	Essential	
Strong written and oral communication skills, with the ability to present complex information clearly and effectively.	Essential	
Proven ability to manage multiple concurrent tasks and activities, working to deadlines and prioritising as appropriate.	Essential	
Proven ability to manage multiple concurrent tasks and activities, working to deadlines and prioritising as appropriate.	Essential	
<b>Personal Attributes</b>		
A commitment to developing robust, maintainable, documented software in an academic environment.	Essential	



## PERSON SPECIFICATION

Accountable, reliable and resourceful.	Essential	
Works ethically, legally and with integrity.	Essential	
An understanding and appreciation of the mission and research environment of the SWC and Gatsby Unit, and a commitment to building the reputation of the SWC and Gatsby Unit as world-leading research centres.	Essential	
<b>UCL Ways of Working for Professional Services</b>		
Responding proactively and appropriately to the needs of colleagues, staff, students and partners.	Essential	
Accountability for decisions and actions.	Essential	
Sharing relevant knowledge and experience.	Essential	

## HOW TO APPLY

### Contact Us

Informal enquiries about the post are welcome to  
Dr Adam Tyson: [adam.tyson@ucl.ac.uk](mailto:adam.tyson@ucl.ac.uk)

If you have any queries relating to the application  
process please email the SWC HR team:  
[swc.hr@ucl.ac.uk](mailto:swc.hr@ucl.ac.uk).

### Applying for the Role

#### Redeployment candidates

To begin the online application process, please  
access the advertisement by searching for it via  
the [UCL Redeployment Service](#) using the  
vacancy reference number.

#### External candidates

To begin the online application process, please  
access the advertisement by searching for it on  
the [UCL vacancy search page](#) using the vacancy  
reference number, and click on the “Apply Now”  
button at the bottom of the vacancy  
advertisement.

Please complete the online application form, and  
attach a CV and cover letter. Applications will be  
shortlisted based on selection criteria.

Please note that in the event that you are  
shortlisted, your referees will be contacted prior to  
interview. Please ensure that they are aware of  
this, and will be able to provide a reference in  
these circumstances.

All candidates will be notified of the outcome of  
their application.



## TERMS OF APPOINTMENT

### Pre-employment Checks

Confirmation of appointment will be subject to receipt of satisfactory references, verification of proof of right to work in the UK and to satisfactory pre-employment health and security screening. The Centre will provide overseas candidates who may require sponsorship with support in seeking an appropriate visa.

### Salary

Starting salary will be on the Grade 8 scale according to relevant skills, knowledge, experience and achievement. Staff incrementally progress along the salary scale; the effective date of incremental progression is 01 August each year. You must have completed the period of service stipulated in your contract of employment (typically your probationary period) to be eligible to increment. Incremental progression does not include the discretionary contribution points on the salary scale. Cost of living pay awards are negotiated nationally and are normally effective from 1 August each year.

### Pension

Post-holders will be eligible to join the Universities Superannuation Scheme (USS), subject to the Scheme's rules and eligibility conditions.

### Conditions of Service

Conditions of Service for Research, Teaching and Professional Services Staff can be found online [here](#).

### Probation

Appointments are subject to a probationary period of 9 months.

### Hours of Work and Overtime

UCL's full time working week is 36.5 hours per week. SWC is willing to consider flexible-working arrangements, subject to discussion and agreement with your line manager.

Pre-agreed overtime will be offered as equivalent time off in lieu.

### Annual Leave

Staff are entitled to 27 days annual leave per year (pro rata for part-time staff). In addition, staff are entitled to 8 days public and statutory holidays, and around 6 UCL closure days with pay per year.

### Location

SWC and GCNU are located in the heart of London around five minutes' walk from the main UCL campus. The mainline railway stations at Euston, King's Cross, St Pancras, Marylebone and Paddington are within easy reach as are the London Underground stations located at Warren Street and Goodge Street.

### Equal Opportunities

SWC and GCNU are committed to the promotion of equality, diversity and inclusion for its staff, students and visitors and is fully supportive of UCL's policy; the full equality policy statement is available online [here](#).

SWC holds an [Athena SWAN](#) Bronze award.