



## **Gatsby Computational Neuroscience Unit, UCL Research Associate (Training Fellowship - Machine Learning)**

This Training Fellowship will undertake research on a project funded jointly through the Gatsby Charitable Foundation.

Main duties involve undertaking original high quality research within the Unit at the intersection of the fields of machine learning and neuroscience.

Collaboration within and outside the Unit is actively encouraged and supported through the provision of a generous annual travel allowance to support conference, workshop and collaborative research visits.

The Unit is a world-class centre for theoretical neuroscience and machine learning. The Unit has significant interests across a range of areas in machine learning, including unsupervised learning, reinforcement learning, Bayesian statistical theory, nonparametric methods, kernel methods, optimization, and applications to neuroscience, linguistics, vision and bioinformatics. We actively apply these methods to problems in both theoretical and data-driven neuroscience. Machine learning research at the Gatsby Unit is led by Arthur Gretton and Maneesh Sahani. The Unit is especially keen to recruit researchers with expertise in one or more of nonparametric inference, kernel methods, statistical learning theory, hypothesis testing and causal inference.

### **Main duties and responsibilities:**

- To plan and execute high quality research and produce publications, conference papers and other research outputs, in line with personal objectives agreed on appointment and subsequently through the review process.
- To prepare and present findings of research activity to the Unit's main funding body and, as required, to colleagues for review, development or collaborative purposes.
- To contribute to the national and international profile of the Unit through the submission of papers to appropriate journals and attendance and presentation of research findings at appropriate conferences.
- To attend internal and external seminars, conferences and workshops arranged by the Unit and aimed at sharing research outcomes, building interdisciplinary collaboration within and outside the Unit, and mutual education.
- As required, to prepare and submit research bids and proposals in existing and new areas of research.
- As required, to assist with the mentoring of research students (MPhil/PhD).
- If required, to undertake a limited amount of teaching in relation to the Unit's taught induction programme for first year research students and to assist with any associated administration and marking of exams and other procedural assessments.

- To contribute to the overall activities of the Unit as required and to carry out any other duties as are within the scope, spirit and purpose of the fellowships as requested by the mentor or Unit Director.
- To contribute positively in terms of general citizenship within the Unit. This will include helping plan and organise the Unit's seminar and workshop programmes and attending external visitors. It is expected that the fellow will foster interdisciplinary collaborations within, and maximise the didactic potential of, the Unit.
- To maintain own continuing professional and academic development.
- To actively follow and promote UCL policies, including its Equal Opportunities policies.
- To maintain an awareness and observation of Fire and Health & Safety Regulations.

Note: This fellowship description reflects the present requirements of the positions. As responsibilities change and develop, the description may be reviewed and amended in consultation with the postholder.

### **Person Specification**

The following are considered to be essential characteristics of the fellows.

#### Background and Experience:

- A very strong analytical background in machine learning, statistics, computer science, physics or engineering. Training fellows will be expected to have a detailed knowledge and understanding of the literature, and a publication record in highly ranked conferences and journals.
- Proven ability to conduct high quality research in appropriate research areas, as reflected in a strong publication record and peer recognition in the subject area.
- Experience of relating appropriate subject areas for interdisciplinary working and research.
- Proven experience of the ability to manage time and work to strict deadlines.

#### Knowledge – including Qualifications:

Candidates must have a PhD in a relevant subject area by the agreed start date of the position and possess an expert knowledge of the field of machine learning, and associated research techniques and methodologies.

#### Skills:

- Strong mathematical, analytical and computational skills and the ability to apply these skills to machine learning.
- The ability to present research in written and verbal forms.
- Effective written and verbal communication skills.

### Personal Qualities:

- The ability to present complex information effectively to a range of audiences.
- A commitment to high quality academic research and learning in the area of machine learning.
- A commitment to fostering a positive learning environment for students.
- The ability to work collaboratively and as part of a team.
- A commitment to continuous professional and academic development.
- A commitment to UCL's policy of equal opportunity and a willingness to work harmoniously with colleagues and students of all cultures and backgrounds.

### Further Particulars

Training fellowships are funded by the Gatsby Charitable Foundation and are part of a continuing program of training postdoctoral researchers in the computational neuroscience / machine learning discipline. The position is available for an initial period of between one and two years. Funding is specifically for the purpose of training a succession of researchers. To ensure the intellectual renewal of the unit, training fellows are not funded beyond a maximum three year period.

### Salary

The appointment will be at a level appropriate to experience and achievement. Typically, appointments are made within the range £36,522 - £40,716 per annum (including London Allowance).

### Probation

Appointments are subject to receipt of satisfactory references and a successful completion of the probationary period of nine months.

### Holidays

Annual leave is 27 working days for a full-time fellow.

UCL also closes for a period at Christmas and Easter, at which times fellows benefit from a total of 6 'closure days' in addition to statutory Bank Holidays.

### Travel allowance

The Unit provides all postdoctoral researchers with an annual travel allowance of GBP 2,500 to support attendance at conferences and workshops.

### Relocation expenses

The Unit is able to offer assistance of up to GBP 1,000 towards relocation costs. Reimbursement is made in arrears against acceptable evidence of expenditure (original receipts).

## **About the Unit**

The Gatsby Computational Neuroscience Unit, created at UCL in July 1998 with funding from the Gatsby Charitable Foundation, is a centre for theoretical neuroscience and machine learning. As a high profile, international research centre, the Unit has in place extensive visitor, seminar and workshop programmes in order to promote cooperation within the broader academic community.

The Unit provides a unique environment in which a critical mass of researchers interact closely with each other and with other world-class research groups in related departments at UCL. A cross-faculty Centre for Computational Statistics and Machine Learning opened at UCL in 2006, spanning the departments of Computer Science, Statistical Science and the Gatsby Unit. The Alan Turing Institute, a national data science institute of which UCL is a founding partner, is located next to the UCL campus: this will enable joint research with faculty from UCL and the Universities of Cambridge, Oxford, Warwick, and Edinburgh. The Unit's visitor and seminar programmes facilitate staff and student engagement with leading researchers from across the world, with ongoing collaborations including the Machine Learning Department at CMU, and the Institute of Statistical Mathematics in Japan.

Further information about the Unit may be found at: <http://www.gatsby.ucl.ac.uk>

## **About UCL**

UCL is one of the UK's leading universities; a world-class multidisciplinary research and teaching institution, whose staff and former students have included 20 Nobel Prize winners. UCL is also one of the world's top ten universities (World University Rankings, Times Higher, November 2007).

Founded in 1826, UCL was the first university in England to admit students regardless of race, religion or gender. It continues to thrive on the creativity and diversity of its community which today comprises 8,000 staff, and 12,000 undergraduates and 7,000 graduate students from 130 countries across the globe.

Constitutionally part of the federal University of London, UCL is in practice an independent university, with an annual turnover of over GBP 500 million. Its 70 departments span arts and humanities, social and historical sciences, law, architecture and the built environment, engineering sciences, mathematical and physical sciences, life and clinical sciences, and medicine.

75% of UCL's departments received ratings of 'excellent' in national teaching quality reviews carried out between 1993 and 2001 and 60 departments achieved top (grade 5 and 5\*) ratings in the 2001 Research Assessment Exercise. As a result of its track record, UCL receives substantial funding from government and charities, and more than GBP 350 million is currently being invested in state-of-the-art facilities for cutting-edge research and teaching.

Situated at the heart of one of the world's greatest cities, UCL's historic central campus in Bloomsbury is within easy reach of rail and underground stations with links to Heathrow and Gatwick airports and is just minutes away from the Eurostar terminal at St. Pancras.

Further information about UCL may be found at: <http://www.ucl.ac.uk>

## **How to Apply**

Applications must be made online via the UCL job vacancies website: <http://www.ucl.ac.uk/hr/jobs/>. Please be sure to attach to your online application a copy of your CV, statement of research interests, and full contact details (including e-mail addresses) for three academic referees. CVs should include: education history, details of current or most recent position and details of previous employment or fellowships. Incomplete applications will not be reviewed by the selection committee.

The closing date for applications is 6<sup>th</sup> April, 2016.

Gatsby Unit – February 2016