



Lecturer in Software Engineering (Software Systems Engineering Group, Department of Computer Science)

Vacancy Reference Number: 1454131

FURTHER INFORMATION

We are looking for world-class research talent to strengthen and augment existing expertise in Software Systems Engineering in the Department of Computer Science at UCL. The post holder will be based in the Software Systems Engineering (SSE) group within the department of Computer Science at UCL. With this post, we are seeking to complement the existing research of the department, in particular that of the Software Engineering group. We will accept applications from those with a proven track record, with a particular interest in those able to complement strength and/or augment our existing strengths.

The appointee will be encouraged to establish a collaborative research activity with other members of the group, and will benefit from an attractive start up package which will include a fully funded studentship (for which the post holder will be the first supervisor on a project of their choice), funding to attend conferences in the first two years of the appointment (typically up to £5k per annum), and funding for equipment. Only lecturers the department also benefit from a taper that reduces by 50% the standard teaching load in the first year.

The post is offered at Lecturer level (generally comparable to "Assistant Professor", under the US system). Candidates interested in a more senior appointment in the same area are invited to contact the Prof Mark Harman (mark.harman@ucl.ac.uk), the Head of the SSE group

About the Group, Department and University

In this section you will find more information about the Software Systems Engineering group, in the Department of Computer Science at UCL.

We firmly believe that the most important aspect of any software engineering work is its contribution to science and engineering theory and practice. We certainly treat all ranking tables and metrics with a healthy degree of scepticism, and encourage others to do likewise. As software engineers, we need no reminding of the perils of focusing on a single measurement in order to assess "quality". However, we are also mindful of the ease with which any organisation can make facile claims to excellence and leadership, unsupported by evidence. Therefore, we have attempted to provide the reader with a range of quantified and verifiable measurements to back up the claims for excellence in the descriptions you will find below.

The UCL Software Systems Engineering group (SSE)

The Software Systems Engineering group (SSE) undertakes world-leading research in Requirements Engineering, Software Testing, and Search Based Software Engineering (SBSE). It also has recognised outstanding strength and high profile research in Context Aware Systems, Quantified Information Theory, Recommender Systems, Security and Program Analysis/Manipulation.

Founded in 1999 by Professor Anthony Finkelstein, it has since been led by Professors Wolfgang Emmerich, David Rosenblum and Mark Harman (the current Head of Group), all of whom have well-established track records in Software Engineering research. SSE's full-time full professors (for which H indices are more appropriate than they are for more junior staff), have H indices over 50 and each with over 10,000 citations. More than half of all SSE faculty are within the top 1% of the Microsoft Academic Search 10-year field ranking of 86,189 software engineers worldwide (with the current Head of Group ranked 2nd place; 1st place for the most recent 5-year window). The group's work is used by many companies, including Daimler, Ericsson, Google, IBM, Microsoft, Motorola and Visa and the group has current funding in excess of £10m.

All SSE faculty are leading researchers in their fields of research. For example, Licia Capra leads an internationally recognised centre of excellence for research in pervasive urban computing. Her centre is underpinned by multimillion pound funding from a variety of sources, including a significant contribution from Intel Corporation. This is a collaboration with other excellent groups in the department, notably UCLIC, the UCL Interaction Centre. Licia's work on Context Aware and Mobile Systems, is widely cited and well-known (<http://scholar.google.co.uk/citations?user=iwzlsmUAAAAJ&hl=en&oi=ao>) and she has more than 4,000 citations to her work.

The group also benefits from its work with many visitors and senior honorary professors and researchers, such as Paolo Tonella and Sue Black. Paolo is well known for work on Testing, Program Analysis and SBSE, winning the Most Influential Paper award at ICSE 2011. Sue founded BCSWomen (which now has over 1,000 members) and #techmums and led the campaign to save Bletchley Park, arguably the home of the world's first electronic computer. She is an advisor to national and international governmental bodies and has given more than ten keynotes on her work on the past year alone. She is often rated highly in rankings of the most influential people in technology and regularly appears in print and broadcast media, which she uses as a platform for greater public understanding of science.

As well as leading members of faculty, the group is also a home to many outstanding post doctoral researchers, funded by the EPSRC. Several of the group's post docs are only a few years out from their PhD, yet are already established leaders in their own right. For example, Yuanyuan Zhang is well known for work on Search Based Requirements Engineering. Her surveys of SBSE have over 250 citations and she was program co-chair for the International Symposium on SBSE 2013. Federica Sarro was invited to give a keynote on her award winning work on predictive modelling, while Yue Jia and Justyna Petke have both won awards for their SBSE work at SSBSE 2014 and GECCO 2014 respectively. The group also has leading senior research staff. For example, Bill Langdon, who has over 7,000 citations and an H index of 42 and who is widely regarded as a world leader in Genetic Programming, which he is applying to Software Engineering in an emerging technique known as "Genetic Improvement".

The UK Engineering and Physical Sciences Research Council (EPSRC) has specifically identified Software Engineering as a research area it seeks to grow in future. Therefore, the UK in general and UCL SSE group in particular, offer an excellent opportunity for an ambitious software engineering researcher. Requirements, Testing and SBSE are all areas of recognised UK research strength by the EPSRC (the UK's primary funding council for Computer Science research):

"The high quality of software engineering research conducted in the UK is demonstrated by the high number of UK papers in major journals and editorship of these, representation of the UK at key international conferences such as International Conference on Software Engineering (ICSE) including organisation committee membership and conference chairs. The UK is considered strongest in software testing, requirements engineering, and search-based and formal approaches to software engineering..."

(<http://www.epsrc.ac.uk/research/ourportfolio/researchareas/software/>).

SSE has provided three chairs for ICSE, and its faculty have regularly served on the editorial boards of TSE, TOSEM, and many other journals. Between 2010 and 2015 SSE faculty have been/will be program chairs of ISSTA, ICST, GECCO, RE, FSE and ICSME, and have, in that same time frame, given keynote talks at many important conferences such as ASE, ESEM, ETAPS, ICST, ISSTA, GECCO, RE, SPLC and WCRE. SSE provides a vibrant scientific, intellectual, technical and social environment, with regular scientific and social activities. It hosts many visitors from both industry and academia. Our goal is very simple: we seek to be the best software engineering group in the world, providing a supportive, stimulating and scientifically rigorous environment, best characterised as a community of collaborating scholars.

The UCL Computer Science Department

SSE is one of more than 10 research groups in the Department of Computer Science at UCL (<http://www.cs.ucl.ac.uk>). The other research groups are each also world leading, providing a rich wider academic and scientific environment in which to undertake software engineering research. Both the department and the university itself are very well known for providing an opportunity-led, collegiate, collaborative and entrepreneurial environment.

SSE has on-going collaborations with UCLIC (<http://www.ucl.ac.uk/uclic>), the Programming Principles Logic and Verification group (pplv.cs.ucl.ac.uk), and the Information Security Group (<http://sec.cs.ucl.ac.uk>).

The UCL Computer Science Department was recently assessed by the five-year UK-wide research assessment process known as the "Research Excellence Framework (REF 2014)" (www.ref.ac.uk). This determines future general (rather than project-based) research funding. In the two key rankings of the results (Grade Point Average and research power), UCL Computer Science was ranked in first and second place respectively.

Teaching activity the Department and Group

The department has excellent undergraduate, masters and doctoral students from all over the world and UCL as a whole has an emphasis on integrating research and education. The SSE group runs two specialised MSc programmes in software engineering, and also contributes to undergraduate programmes. Staff supervise students carrying out a wide range of cutting-edge project work, much done in collaboration with external companies and organisations.

UCL strongly advocates research-led teaching, and views teaching as a core component of academic staff development. As well as providing access to a wide range of training, UCL also very strongly encourages staff to gain teaching qualifications, such as the Higher Education Academy (HEA) Fellowship.

UCL: London's Global University

UCL was founded in 1826, on the principle of education provision free to all, regardless of race, creed or religion. Its motto is "Cuncti adsint meritaque expectent praemia palmae" (Let all come who by merit deserve the most reward). It was the first University in England to be entirely secular, admitting students regardless of their religion, and the first to admit women on equal terms with men. UCL is the 13th most cited University in the world (based on data from 1999 to 2009) and the most cited in Europe. Its current and former staff include 28 Nobel Prize winners and 3 winners of the Fields Medal. It is consistently ranked in the top twenty Universities in the world (typically between 4th and 20th in recent years, depending on the ranking system used). In the 2014 Research Excellence Framework (REF) the University as a whole (overall all subjects) was ranked in 8th place for score (GPA) and first place for research power.

UCL is located in the Bloomsbury part of London, surrounded by museums (including the British Museum which is two minutes walk away, and several of its own UCL on-site museums), restaurants, galleries and theatres (all within walking distance). Bloomsbury also has strong literary and artistic associations, dating back several centuries, and is one of the most attractive parts of London in which to work, punctuated by charming squares, green spaces and beautiful architecture. It has excellent transport links, being minutes from several tube (London Underground) stations, and twenty minutes walk from the mainline, national and international railway stations of Euston, King's Cross and St. Pancras International.

The Work Required for this Post

The standard wording in an academic contract is:

"You will perform such duties as the Head of Department may from time to time require. The work will be so arranged as to leave time to pursue studies and make original investigations; this will be regarded as part of the duties."

Thus, there are teaching (and associated administrative) duties, and research "duties". Considerable freedom is left to individuals in their working practices; staff are expected to be in UCL during term-time, and are also responsible for the supervision of postgraduate students during the summer vacation. It is departmental policy to provide each lecturer with their own room and access to computing equipment and lab space to assist in the performance of these duties.

A mentor, an experienced member of academic staff, is assigned to each new lecturer. There is an appraisal, review and development scheme. As a part of this, staff are expected to attend training courses run by UCL for activities such as lecturing, tutoring, interviewing, writing papers, making grant applications, project management, and so on. Probationary lecturers may supervise research students with an experienced member of staff acting as co-supervisor.

Research

It is difficult to generalise about research activities. However, academics are expected to extend the knowledge base in their area and to aim to become an accepted authority. This is important for maintaining the international research reputation of the department but also for the career progression of the individual. We would expect to see growing evidence of this through publications in the best conferences and journals, research grants and successful research students during the academic's career. We also look to staff to be actively engaged with the scholarly and professional community.

UCL has a strong reputation for interdisciplinary research. Engagement with UCL research centres is an important component of the way in which research is conducted.

Contact with industry, public institutions and commerce through collaboration is encouraged and similarly we encourage consultancy work. There is a generous provision of time for this work. We are particularly keen on entrepreneurial activities such as spin-out companies and our staff have a strong reputation for work in this area.

Teaching

The current post is for faculty who will be able, *inter alia*, to teach core computer science topics, as well as advanced material related to their area of interest. Thus, the successful candidate is likely to have a degree in Computer Science or cognate topics with practical experience and a demonstrable interest in computer science foundations. An academic will typically (after some period of 'tapering-in'):

- prepare and deliver two courses, nominally of 30 lecture hours each
- organize and attend any associated practicals and mark coursework, possibly with help from paid demonstrators
- set and mark examinations for the courses taught, and second examine others' courses
- have one or two tutorial groups of 4-8 students, meeting them once per week
- supervise a few undergraduate final year projects
- supervise a few MSc projects during July-September
- supervise some MRes, PhD and/or EngD students
- be available for consultation by students on course-related problems, setting up student projects, and any other problems.

All staff help in the recruitment of students. Also all staff are expected to keep in touch with a few former students.

Every member of staff has one or more administrative academic tasks, such as assisting with examinations liaison, publicity, library, admissions, etc. The department has a strong team of administrative staff to assist with most of these tasks. There are Teaching Committee meetings which lecturers with commitments to specific programmes attend, and some of the duties involve sitting on other departmental committees.

From time to time all staff are involved in preparations for teaching and research assessments and for accreditation by professional bodies.

A large practical course is a heavier responsibility than a small theoretical one. Developing a new course takes much effort (but is fun). Similarly, some administrative tasks are much more time-consuming than others. The department actively manages staff load taking these factors into account.

Staff should be willing to serve on UCL committees if the need arises; this is rarely onerous. Senior staff will usually act as external examiners at other universities.

For an informal discussion please contact Prof. Mark Harman (Mark.Harman@ucl.ac.uk), the Head of the SSE group.

JOB DESCRIPTION

Title: Lecturer
Department: Computer Science
Reports to: Head of Department or nominated Head of Group
Grade: Grade 8 £ £41,430 - £48,873 per annum

Main purpose of the job:

To carry out research, teaching and administration within the department, especially in the area of Software Engineering.

You are expected to have a strong knowledge of the subject area combined with a broad subject background enabling contributions to teaching programmes. A PhD is essential and membership of a relevant professional organisation is desirable.

You must have excellent interpersonal, oral and written communication skills and a proven record of ability to conduct high quality research which is reflected in the authorship of high quality publications, or other research outputs, in the areas of computer science. A proven record of ability to manage time and evidence of ability to teach and to supervise academic work by undergraduates, masters and doctoral students are desirable.

You should have the ability to work collaboratively. You must have a commitment to academic research; to high quality teaching and fostering a positive learning environment for students; to continuous professional development; to public communication; and to UCL's policy of equal opportunity as well as the ability to work harmoniously with colleagues and students of all cultures and backgrounds.

Main duties and responsibilities:

- To teach at undergraduate and graduate level in areas allocated by the Head of Department or Director of Studies and reviewed from time to time by the Head of Department.
- To carry out research and produce publications, or other research outputs, in line with personal objectives agreed in the Staff review process.
- To obtain research funding support.
- To engage with the broader scholarly and professional communities.
- To supervise or assist with supervision of undergraduate, taught graduate (Masters) or research graduate (MPhil/MRes/PhD/EngD) students.
- To contribute to the development, planning and implementation of a high quality curriculum.
- To assist in the development of learning materials, preparing schemes of work and maintaining records to monitor student progress, achievement and attendance.
- To participate in departmental and faculty seminars aimed at sharing research outcomes and building interdisciplinary collaboration within and outside the department.
- To participate in the development, administration and marking of exams and other assessments.
- To provide pastoral care and support to students.
- To participate in the administration of the department's programmes of study and other activities as requested.

- To contribute to departmental, faculty, or UCL-wide working groups or committees as requested.
- To maintain own continuing professional development.
- To actively follow and promote UCL policies, including Equal Opportunities.
- To maintain an awareness and observation of fire and health and safety regulations.
- To carry out any other duties commensurate with the grade and purpose of the post.

All academic staff are expected to demonstrate their on-going commitment to academic excellence; that is, to the conduct of research, publication, teaching, enabling and other forms of knowledge transfer, at the highest levels of international achievement. For more information on UCL standards see: <http://www.ucl.ac.uk/excellence/>

This job description reflects the present requirements of the post, and as duties and responsibilities change/develop, the job description will be reviewed and be subject to amendment in consultation with the post-holder.

PERSON SPECIFICATION

The person appointed is likely to have the skills and experience listed below.

1. Knowledge

Essential: A strong knowledge of the subject area (software engineering) combined with a broad subject background enabling contributions to teaching programmes.

2. Skills

Essential: Excellent interpersonal, oral and written communication skills.
Proven record of ability to conduct high quality research, which is reflected in the authorship of high quality publications, or other research outputs, in the area of Software Engineering.

Desirable: Proven record of ability to manage time and work to strict deadlines.
Evidence of ability to teach and to supervise academic work by undergraduates, masters and doctoral students

3. Aptitude

Essential: Ability to work collaboratively

4. Qualifications

Essential: PhD

Desirable: Membership of a relevant professional organisation

5. Previous Experience and Track Record

Essential: Excellent research record in software engineering.
Evidence of potential to attract funding.
Evidence of peer esteem commensurate with that achievable by a world class researcher at the relevant stage of career development.
Evidence that the candidate will be able to provide research outputs likely to be deemed as worthy of 4* in the nomenclature of the 2014 REF (<http://www.hefce.ac.uk/research/ref/>) .

Desirable: Assessment of student work.
Curriculum design.
Engagement with scholarly/professional community.
Pastoral care of students.

6. Personal Qualities

Essential: Commitment to academic research.
Commitment to high quality teaching and fostering a positive learning environment for students.
Commitment to continuous professional development.
Commitment to public communication.
Commitment to UCL's policy of equal opportunity and the ability to work harmoniously with colleagues and students of all cultures and backgrounds.

Application Procedure

Applications for the position should be made online at

Applicants should submit the following materials, such that all materials arrive on or before the closing date:

- Complete **curriculum vitae**, which must include:
 - education history
 - details of previous employment
 - details of current or most recent employer (name and address of current organization, job title and duties)
 - list of publications, preferably including citation information
 - details of membership of any professional organisations
 - URL of the applicant's personal Google Scholar page giving citation information
 - URL of DBLP page containing publication information
- Details (name, relationship to you, address, e-mail address, telephone number) of three referees who are leading figures in the relevant subject (including at least one referee based outside the candidate's country of residence). Letters from these referees should be sent directly to UCL CS at the time of your application.
- **Three letters of reference, each sent **directly** by the reference writer to Ms Katie Bourke, crest-admin@ucl.ac.uk**
- Brief (no longer than two sides of A4 paper) **statement of research interests and plans**
- Brief (no longer than two sides of A4) **statement of teaching interests**

Please note that UCL will ***not*** request your reference letters; it is your responsibility to ensure that your referees send the letters to UCL Computer Science in time to arrive by the closing date.

Help and Assistance

If you have any difficulty with the application process, please take a look at the Frequently Asked Questions at <http://bit.ly/1SH42b>

If you cannot find the answer to your question please contact Katie Bourke crest-admin@ucl.ac.uk

CVs e-mailed to this address will not be accepted unless a prior agreement has been made.

* Any candidates unable to apply online should contact Katie Bourke (crest-admin@ucl.ac.uk) their individual circumstances and the best alternative arrangements to suit their needs: we will do all we can to accommodate any particular requirements or needs related to a disability.

For academic queries about the post, please contact Prof. Mark Harman, Mark.Harman@ucl.ac.uk, the Head of SSE Research group.

Submission

Submission of your application is final and you will not be able to amend your application or add additional documents once you have pressed 'Submit', so please only submit when you are happy that your application is complete. *But please don't forget to submit!* Once all elements of your application are checked as completed, make sure you log back in and click on the Submit button before the closing date/time.

The latest time for submission will be 23:59 hours British Summer Time. Once you have submitted your application you will only be able to amend your personal details, i.e. address, telephone number etc.

Please note that the number of documents that can be uploaded is limited to 2 documents.

After the closing date

Please check with your referees if you want to be sure that reference letters have been sent to, and received by, us. We will acknowledge all references received within 7 days of receipt (by e-mail acknowledgement to the referee).