Professor of Critical Systems
Department of Computer Science

Closing date: 1 December 2019
Interview date: 7 January 2020
Vacancy reference: 8139
INTRODUCTION

As part of a significant further investment in Computer Science, I have pleasure in inviting you to apply for this Chair in Critical Systems. Over the two years we have recruited over 10 academic and teaching staff into the Department, with a further 10 over the next year. This reflects the Department’s vision for growth and ambition to remain one of the top Computer Science Departments in the UK. We remain world-leading in safety-critical and high-integrity systems engineering, both in terms of teaching and research. Alongside successful teaching and CPD in safety-critical systems engineering, we are also the home to the Assuring Autonomy International Programme, which is an ambitious project funded by the Lloyds Register to establish assurance approaches and practices for autonomous systems.

The post-holder will be expected to pursue research of the highest standards, attracting external funding to support the Department’s research and innovation activities. They will also be expected to build links and partnerships with industrial partners. They will join an ambitious expanding Department with a community of academics that publish in the highest ranked journals and conferences, attract significant research income and teach to the highest standards. This is an exciting time in the lifetime of the Computer Science Department, and I encourage you to consider this opportunity.

Prof Neil Audsley BSc, DPhil (York)
Head of Department
The main purpose of the role

Professors at York are expected to advance their subject nationally and internationally and to contribute to maintaining the University as an international centre of excellence for the relevant subject area through research and publication, teaching, networking and consultancy.

We are currently seeking applicants who will have an all-round impact during the next exciting phase of development of this internationally leading Computer Science department. Successful candidates will (i) be internationally excellent researchers in Critical Systems, and / or have extensive industrial experience in Systems Safety; (ii) engage in collaboration within and outwith the Department, including supporting and mentoring early career researchers and postgraduate students, supporting and collaborating with ongoing research programmes within the Department; (iii) contribute academic leadership to the Department and University, particularly in leading development of Critical Systems research and teaching across the University; (iv) engage with colleagues, supporting the continued development of teaching programmes in Critical Systems; (v) work at senior levels within the Department and with external organisations to lead, generate and deliver Continuing Professional Development; (vi) actively engage with the wider Department and University to help to create a distinctive and positive working environment that emphasises excellence.

Professors are required to undertake the duties outlined below:

Key responsibilities

(Role holders will be required to undertake some or all of the duties below)

- To support the research activities of the Department
- To carry out internationally outstanding research and scholarship
- To disseminate this research through monographs, articles in journals of international standing, and other appropriate forms of dissemination, including national and international conference presentations
- To play a leading role in the Department in identifying and securing external funding through research grants and contracts, and in developing collaborative research income-generating activities
- To attract and supervise research students, and, as appropriate, post-doctoral researchers and other support staff
- To support, comply with, and contribute fully to research plans and policies of the Department and the University
- To support and mentor junior academic colleagues in order to promote quality of teaching and research and their career development

To support the teaching objectives of the Department

- To design and be responsible for delivery of modules and teaching programmes for undergraduate and graduate students
- To play a leading role in departmental and interdepartmental curriculum development and quality enhancement
- To coordinate team teaching, as required, including liaison with other staff and with postgraduates who teach
- To design and mark assessments, and give feedback
- To supervise undergraduate and graduate projects and dissertations

JOB DESCRIPTION

At a glance

<table>
<thead>
<tr>
<th><strong>Salary</strong></th>
<th>Minimum starting salary £64,986</th>
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<tbody>
<tr>
<td><strong>Hours of work</strong></td>
<td>37 per week (flexibility is available)</td>
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<tr>
<td><strong>Contract type</strong></td>
<td>Open</td>
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<tr>
<td><strong>Based at</strong></td>
<td>Heslington Campus</td>
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Main purpose of the role

Professors at York are expected to advance their subject nationally and internationally and to contribute to maintaining the University as an international centre of excellence for the relevant subject area through research and publication, teaching, networking and consultancy.

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JOB DESCRIPTION

- To carry out teaching in Continuing Professional Development
- To undertake pastoral support of students, as a personal supervisor or in another designated role
- To support and promote fully the University and Department teaching quality assurance standards and procedures

To contribute to the efficient management and administration of the Department

- To make an important contribution to the leadership and management of the Department, including supporting early career staff and developing new collaborative initiatives
- To attend Departmental meetings, meetings of the Board of Studies, and other committees and working groups within the Department and University
- To carry out relevant professional duties, commensurate with the Professorial grade
- To undertake specific departmental roles and management functions as may be reasonably required by the Head of Department
# PERSON SPECIFICATION

<table>
<thead>
<tr>
<th>Qualifications</th>
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<tr>
<td>PhD in Computer Science, or a related discipline</td>
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<tr>
<th>Knowledge</th>
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<tr>
<td>Outstanding and internationally recognised knowledge of Critical Systems</td>
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<tr>
<th>Skills, abilities and competencies</th>
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<tr>
<td>Ability to define, lead, manage and attract funds for internationally excellent research, operating across disciplinary boundaries</td>
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<td>Ability to consistently publish academic work that is recognised as internationally leading</td>
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<td>Ability to work with external and non-academic organisations for research impact and CPD</td>
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<td>Proven leadership and managerial skills</td>
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<td>Ability to manage and interact with staff and students at all levels and to contribute to broadening the strategic development of the Department</td>
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<td>Evidence of international collaboration</td>
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<td>Evidence of peer review activities</td>
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<tr>
<th>Experience</th>
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<tr>
<td>International leader in a major research field, leadership of research group/theme</td>
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<td>Substantial publication record in leading peer-reviewed journal</td>
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<td>Attraction and effective supervision of postgraduate students</td>
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<td>Significant and sustained success in accessing research grants and other external funding</td>
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<tr>
<td>Exceptional achievement in curriculum development, course design and teaching, learning and assessment methods at UG and PG levels and in encouraging student access and engagement</td>
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## PERSON SPECIFICATION

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<tr>
<th>Experience (continued)</th>
<th>Essential / Desirable</th>
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<tr>
<td>Invited presentations at major international conferences</td>
<td>Essential</td>
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<tr>
<td>Effective and sustained involvement in major administrative tasks or positions of responsibility within a department or research unit</td>
<td>Essential</td>
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### Personal attributes

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<tr>
<th>Personal attributes</th>
<th>Essential / Desirable</th>
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<tr>
<td>Demonstrable capacity for strategic thinking and planning</td>
<td>Essential</td>
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<td>Ability to take a lead in key administration functions within the department</td>
<td>Essential</td>
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<tr>
<td>Self-motivated, pro-active and innovative</td>
<td>Essential</td>
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The Department of Computer Science has a very strong international research record. The Research Excellence Framework (REF) 2014 results ranked York’s Computer Science 7th overall in the UK, 5th for impact and 6th for environment. 90% of our academic staff were rated as "world leading" or "internationally excellent". This result confirms the longstanding global reach and real-world significance of the Department’s research and makes us one of the best departments in the country for nurturing excellent research and achieving economic, social and cultural impact from research. All aspects of our impact and environment were judged to be of world-leading or international standard.

The Department has strong and long-standing links with industry, including strategic partnerships with several large companies including IBM. The Department is also highly regarded for its Continuing Professional Development courses. The Department has four key research themes that are central to our expertise and understanding of interdisciplinary computer science research: Critical Systems; People, Health and Wellbeing; Analytics; and Beyond Human Vision. The themes are supported by researchers specialising in Cyber-Security, Real-Time and Embedded Systems, Enterprise Systems, High Integrity Systems, Computer Vision and Pattern Recognition, Human Computer Interaction, Artificial Intelligence, High Performance Computing and Computer Architecture. The Department also has four unique research centres which span several departments and reflect the interdisciplinary approach of our work: York Cross-disciplinary Centre for Systems Analysis; Digital Creativity Labs; Quantum Communications Hub; and the Assuring Autonomy International Programme. These centres are tackling some of the major challenges currently facing computer science including how to assure and regulate robotics and autonomous systems that learn as they operate, and how to advance quantum communication technologies, so they can be launched and adopted.

The Department is housed in modern, purpose-built accommodation within the Heslington Campus East. We have 59 members of academic and teaching staff and 37 research associates and fellows employed on research grants and contracts. Seven specialist teaching staff deliver modules to industry as part of our highly regarded CPD programme in safety critical systems. We have a vibrant graduate school of approximately 180 research students, and over 640 undergraduate and approximately 220 full-time and part-time taught postgraduate students. The Professional Support Service comprises 27 administrative staff and 12 technical and computing staff.

The Department of Computer Science and the University is committed to promoting a diverse and inclusive community - a place where we can all be ourselves and succeed on merit. We offer a range of family friendly, inclusive employment policies, flexible working arrangements, staff engagement forums, campus facilities and services to support staff from different backgrounds.

https://www.cs.york.ac.uk/
Founded on principles of excellence, equality and opportunity for all, the University of York opened in 1963 with just 230 students. In 2019 it is the home of more than 17,000 students across more than 30 academic departments and research centres. Since opening over fifty years ago, we have become one of the world's leading universities and a member of the prestigious Russell Group.

We are consistently recognised as one of the leading Higher Education Institutes and are ranked 16th in the Times & Sunday Times league table (2017). The University of York has won six Times Higher Education (THE) Awards and five Queen’s Anniversary Prizes.

The University is proud of its association with Athena SWAN, holding 12 awards in support of gender equality, representation and success for all, with gold awards for Chemistry and Biology and a University-wide bronze award.

Of 154 universities that took part in the Research Excellence Framework (REF) in 2014, The University of York ranked 14th overall and 10th for the impact of our research. The University is consistently in the top ten UK research universities and attracts over £60m a year of funding from research alone.

Our vision is to make the University of York a world leader in the creation of knowledge through fundamental and applied research, the sharing of knowledge by teaching students from varied backgrounds and the application of knowledge for the health, prosperity and well-being of people and society.
Attractive workplace

Centred around the picturesque village of Heslington on the edge of the city of York, our colleges are set in an attractive landscaped campus. York enjoys a safe, friendly atmosphere with facilities including bars, shops, theatres and concert halls all within easy walking distance.

The University has undergone an unprecedented period of expansion and renewal since 2000. We have invested in twenty new buildings on the original campus and have completed the first and second phases of a £750m campus expansion. Our investment in new colleges, teaching and learning spaces, laboratories, research facilities and a new sports village mean there has never been a better time to join us.

During this period of change we've worked hard to retain our friendly, informal and collegiate atmosphere, which is important to our core values of inclusivity and interdisciplinarity.

We have a thriving international community and are committed to providing staff moving to York with as much support as possible through our Relocation Package and Welcome Officers.

The University is committed to promoting a diverse and inclusive community - a place where we can all be ourselves and succeed on merit. We offer a range of family friendly, inclusive employment policies, flexible working arrangements, staff engagement forums, campus facilities and services to support staff from different backgrounds.

For further information please visit our employee benefit pages
THE CITY AND THE REGION

The City of York

Internationally acclaimed for its rich heritage and historic architecture, York’s bustling streets are filled with visitors from all over the world. Within its medieval walls you will find the iconic gothic Minster, Clifford’s Tower and the Shambles - just a few of the many attractions.

But York isn’t just a great place to visit - it’s also a great place to live and work. While nourishing a vibrant cosmopolitan atmosphere, York still maintains the friendly sense of community unique to a small city.

Visit www.visityork.org for more information on the city of York.

Shopping, culture and entertainment

York boasts specialist and unique boutiques but also all the high street stores on its busy shopping streets. Alongside them you will find cinemas, theatres, an opera house, art galleries, a vast range of restaurants, live music venues and clubs. York is particularly renowned for its multitude of pubs and bars, from the modern to the medieval.

Housing and schools

Whether you choose to live close to the city, in one of the surrounding villages or further afield, you will find a wide range of housing within comfortable distance of York and the University. For families, the area has a range of excellent schools both in the state and independent sector.

Great location

York is one of Britain’s best-connected cities. Halfway between London and Edinburgh on the East Coast mainline, on intercity trains you can reach London King’s Cross in less than two hours and Edinburgh in two and a half hours. York is also well served by road links, and it is easily accessible from the A1, M1 and the M62.

For those travelling from overseas, Manchester Airport is two hours away and Heathrow Airport just three and a half. Flights from nearby Leeds Bradford Airport provide easy access to mainland Europe. By Eurostar from London St Pancras, Paris is just over six hours away.

Yorkshire

The Lonely Planet guide recently declared Yorkshire the third best region in the world to visit. There is something to cater to every taste, whether it be the rugged landscapes of the Moors or the Dales, the picturesque seaside towns of Scarborough and Robin Hoods Bay, the gothic architecture of Whitby or the vibrancy of cosmopolitan Leeds.
Apply online

- Go to [https://jobs.york.ac.uk](https://jobs.york.ac.uk)
- Find this job using reference 8139
- Complete the online application form
- During the application you will be asked to state if you are applying for the Chair, Reader or both.

You will need to submit your completed application by midnight (local UK time) on 1 December 2019.

What will I need?

We will ask you for details of:

- Your CV
- A letter describing how you meet the requirements of the job
- A statement of your research and teaching intentions

You will also need details of three academic referees (one International) and one Employment referee.

Help and assistance

Direct any informal queries to Professor Neil Audsley (neil.audsley@york.ac.uk)

If you have any questions about your application, contact the HR Services team:

recruitment@york.ac.uk
+44 (0)1904 324835