



Job Title: Associate Professor in High Performance Computing

Grade: 9

Salary: £59,139 to £66,537 per annum, pro-rata if part-time

Department: School of Computing and Mathematical Sciences

Hours/Contract: Full-time or job share, permanent

Job Family: Teaching and Research

Reference: 10370

Role Purpose

To draw on extensive academic excellence to underpin and carry out activities across a range of areas of academic and university life that aligns with [the University's strategic themes](#) of 'World Changing Research', 'Research Inspired Education' and 'Our Citizens', together with the University's values.

The roles include an expectation of leadership, development and delivery of research and teaching in their respective areas, as well as contributions to the management of the School, College and University.

Main Duties and Responsibilities

World-Changing Research

- To make a significant contribution to research in Computer Science, consistent with the Distributed and High-Performance Systems group's existing activities in High-Performance Computing Systems for AI, advanced distributed machine learning algorithms, integration of machine learning in large-scale autonomous cyber-physical systems, performance and scalability optimization, trust-aware digital twins platforms, and quantum computing applications in machine learning.
- To engage in interdisciplinary research with UoL partners, such as the School of Physics and Astronomy, and Leicester Institutes such as the Institute for Structural and Chemical Biology, and the Institute for Environmental Futures, the National Centre for Earth Observation and Space Park Leicester
- To produce research outputs of a high standard with best outputs internally and externally assessed as 4* (world-leading in terms of originality, rigour, and significance).
- To secure sustained external research income on an individual and collaborative basis, as appropriate to the field or discipline.
- To engage in research and enterprise leadership, making significant contributions to promoting and embedding an inclusive and respectful research culture.
- To lead on and contribute to the generation of income and external impact in your area in line with the enterprise agenda (including CPD, working with external organisations, both nationally and internationally, commercialisation, commissioned research and consultancy).
- To provide high quality PGR supervision and training, contributing to securing funding for postgraduate and early career researchers and increasing PGR recruitment within the subject discipline

Research Inspired Education

- Undertake research-led teaching on undergraduate and/or postgraduate taught courses, incorporating innovative teaching methods and the latest educational concepts.





- Contribute to the development, enhancement and achievement of the academic strategy in the School, through leading and engaging in activities/projects that drive innovation and have a beneficial impact
- Lead the development, revision and updating of programmes at undergraduate and/or postgraduate level, ensuring that they are inclusive, embed key skills, and incorporate sustainable development goals
- Lead teaching delivery and assessment to ensure consistent high quality teaching practice, providing timely formative student feedback and assessment for coursework and examinations
- Provide support and contribute to shaping a comprehensive range of student support initiatives at School, College, and/or University level, including, placement support, links with industry, personal tutor support, employability activities/projects and open days support
- Work with students to provide world class teaching and learning opportunities and an excellent student experience, regularly collecting and responding to student feedback
- Demonstrate wider educational impact through contributions to projects or scholarly discourse aimed at enhancing pedagogy or improving student outcomes
- Engage with scholarship and pedagogical research to continuously develop own teaching practice and that of others, leading to improved delivery and outcomes, with due regard for sector best practice

Our Citizens

- Contribute to initiatives and activities that inform national and international policies and decisions, generating a positive impact beyond the University and making a tangible contribution to society.
- Contribute to the practice or debate around policies or practice, based on research evidence and/or scholarly activity
- Participate in public engagement activities, including authoring articles in non-research publications and online, which raise the external profile of the University and share the benefit of Higher Education and research
- Actively engage with the academic discipline both nationally and internationally, undertaking roles on external committees, reviews and panels and/or contributing to conferences and volunteering initiatives which demonstrate impact beyond the University
- Participate in and undertake leadership roles at School, College, and/or University level contributing to management and administrative processes and committee structures
- Support the recruitment, management and development of staff and students, through coaching, mentoring and supporting recruitment activities.

Internal and External Relationships

Coordination of research, enterprise and teaching activities in your area within the School, the College, and the University. Collaboration with school, college and university administration and management. Research collaboration with the College of Life Sciences (including the Institute for Precision Health), Space Park Leicester and the Institute for Environmental Futures.

Planning and Organising

Shaping the strategic direction of your own area of activity in research, enterprise and teaching.





Help develop school-, college- and university-level strategies and contribute to operational planning and implementation of such strategies.

Qualifications, Knowledge and Experience

Essential

- A PhD or equivalent in computer science, mathematics or cognate area *
- Expertise in the field of Distributed and High-Performance Systems including*:
 - *Methods for exploiting modern system architectures for high-performance AI; Methods for embedding machine learning in large-scale deployment of distributed and high-performance computing systems, particularly those comprised of components that operate autonomously;*
 - *Distributed and high performance machine learning algorithms and system architectures (incl quantum systems);*
 - *Methods to meet performance, latency, scalability and complexity demands of distributed and high-performance machine learning architectures;*
 - *Quantum distributed computing, quantum machine learning.*
- Evidence of an emergent track record of sustained achievement in internationally leading research in terms of originality, significance and rigour, that are consistent with the School of Computing and Mathematical Sciences that is aspiring to achieve the highest standards of excellence *
- Evidence of ability to engage in interdisciplinary research with other schools of the University*
- Evidence of ability to engage in collaborative research, knowledge-transfer activities or consultancy with industry*

Desirable

- Evidence of collaborative research with leading groups or companies in the UK or abroad.
- Experience in organising seminars, workshops, conferences or other research meetings.
- Experience in supervision of undergraduate or postgraduate students.
- Academic Teaching Qualification or commitment to gain the appropriate category of HEA Fellowship.

Skills, Abilities and Competencies

Essential

- Ability to teach and to supervise projects within core areas of Computer Science *
- High level of proficiency in English (both in writing and verbally), sufficient to undertake research, teaching and administrative activities utilising English Language materials and to communicate effectively with staff and students at the University of Leicester *
- Ability to write research grant proposals and high-quality journal papers *
- Demonstrate commitment to equality, diversity and anti-discriminatory behaviour. (Staff to undertake equality and diversity training and all other mandatory training)
- Willingness and ability to travel and work overseas





- Ability to communicate and collaborate with existing staff in the School of Computing and Mathematical Sciences and other departments.
- Good interpersonal and personal skills and traits including:
 - *Selflessly balancing the needs of colleagues, the organisation against your personal goals*
 - *Time management and prioritisation*
 - *Commitment to accountability, integrity, and trustworthiness*
 - *Ability to work in teams and to be able to balance organization and personal goals o Solution-focussed and problem-solving mentality*

***Criteria to be used in shortlisting candidates for interview**

Criminal Declaration

If you become an employee, you must inform your manager immediately, in writing, if you are the subject of any current or future police investigations/legal proceedings, which could result in a criminal offence, conviction, caution, bind-over or charges, or warnings.

Supporting University Activities

As a University of Leicester citizen, you are expected to support key university activities such as clearing, graduation ceremonies, student registration and recruitment open days. We expect all staff as citizens to work flexibly across the University if required.

University Values

Inclusive - We are diverse in our makeup and united in ambition. Our diversity is our strength and makes our community stronger.

Inspiring - We are passionate about inspiring individuals to succeed and realise their ambitions. We challenge our community to think differently, to get involved, and to constantly embrace new ideas.

Impactful - As Citizens of Change we will generate new ideas which deliver impact and empower our community

Equity and Diversity

We believe that equity, diversity and inclusion is integral to a successful modern workplace. By developing and implementing policies and systems that challenge stereotypes across all aspects of our work, we have a culture that recognises and values the diverse contributions of our staff which benefits everyone. Our strong values of inclusivity and equity support our efforts to attract a diverse range of high quality staff and students, and identify our University as a progressive and innovative workplace that mainstreams equity, diversity and inclusion.

