Job Title: **Professor in Distributed Systems**
Grade: **10**
Salary: **Competitive**
Department: **School of Computing and Mathematical Sciences**
Hours/Contract: **Full-time and permanent**
Job Family: **Teaching and Research**
Reference: **10370**

Role Purpose

The University of Leicester is one of the top 200 universities in the world and top 25 in the UK according to the Times Higher Education (THE) World University Rankings 2021. Our ambitious staff and students work in cooperation to deliver research, teaching and learning of the highest quality. The School of Computing and Mathematical Sciences provides a rich and culturally diverse environment where both students and staff can thrive in a demanding yet cooperative and friendly atmosphere.

We are looking for a candidate in the area of Distributed and High-performance systems, who will join the eponymous group led by Prof. Ashiq Anjum. The group has been successful in obtaining funding for a number of projects based on self-learning digital twins, and plans to expand into quantum systems and quantum machine learning. Ability to strengthen any of these areas would be particularly welcome.

The School has research links with Space Park Leicester, the College of Life Sciences (including the Leicester Institute for Precision Health and the Leicester NIHR Biomedical Research Centre), and Institute for Environmental Futures at the University of Leicester and aims to strengthen and deepen these research links. The School is a founding member of the College of Science and Engineering's Centre for AI, Data Analytics and Modelling (AIDAM), and has ambitions to lead a future UoL research institute in Data Science. The candidate should be able to shape and strengthen these aims of the School.

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 advanced distributed machine learning algorithms, high-performance AI systems, 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, preferably in Life and Health Sciences, Space Technology, or Climate, Earth Observation, Ecology or related areas.
- 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 an 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
- Lead and 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.

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*:
  - *Distributed machine learning algorithms and system architectures (including quantum systems);*
  - *Methods for exploiting modern system architectures for high-performance AI;*
  - *Methods for embedding machine learning in large-scale deployment of distributed cyber-physical systems, particularly those comprised of components that operate autonomously;*
  - *Methods to meet performance, latency, scalability and complexity demands of distributed machine learning architectures;*
  - *Novel digital twins platforms that integrate real-world constraints to offer reliable and trust-aware machine learning models;*
  - *Quantum distributed computing, quantum machine learning.*
- Evidence of 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

- High level of proficiency in English, sufficient to undertake research, teaching and administrative activities utilising English Language materials and to communicate effectively with staff and students.
- Proven ability or potential to generate external funding through research grants, consultancy, knowledge-transfer activities, or other sources to support research and its transition into applications.
- Proven ability or potential to initiate work independently and as part of a team, both on research and teaching programmes.
- Proven ability or potential to teach undergraduate and postgraduate students in lectures, tutorials and seminars, and to supervise postgraduate students.
- Ability or potential to help develop curricula.
- Ability or potential to engage in outreach activities.
- Good written* and oral communication skills, along with presentation and training skills.
- Good interpersonal skills.
- Ability and willingness to teach undergraduate and postgraduate modules in a range of core Computer Science subjects, and to supervise UG and PG projects in such areas.*
- Good time management, and personal organisation skills
- Ability to communicate and collaborate with existing staff in the School of Computing and Mathematical Sciences

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.