

UNIVERSITY OF LIVERPOOL

Postdoctoral Research Associate

Grade and salary: Grade 7 £40,704 - £46,970 per annum
Working hours: Full time
Tenure: Fixed-term start immediately until 31 May 2028
Location: Hybrid working, Liverpool campus
Faculty: Science and Engineering, School of Computer Science and Informatics, Department of Artificial Intelligence

Recruiting department contact: Email: xiaowei.huang@liverpool.ac.uk
Job ref: 118953

The Role

Role overview and University context:

The University of Liverpool is seeking to appoint a motivated and enthusiastic individual to conduct research on making Generative AI (GenAI) more robust.

You will enjoy a vibrant environment at Liverpool where, in the School of Computer Science and Informatics, we have an active group of PhD students, postdocs, and academics working in the intersection of Machine Learning, Verification and Validation, Statistics, and Symbolic Reasoning.

The position includes collaboration with our partners not only in the UK but also in the European continent, so there will be travels to the European countries.

Key responsibilities and duties:

- Conduct research in the framework of research projects, to deliver outcomes that align with the objectives of the research projects
- The research will be primarily on developing novel methods to specify, construct, evaluate, verify, and monitor GenAI systems, with a preference on methods that can provide provable guarantees. For GenAI systems, we will consider not only the GenAI models (such as various foundational models) but also complex human cyber-physical systems that use GenAI models. We will consider concrete systems in several domains including automotive, service robotics, and cybersecurity.
- In particular, the research will consider the assessment of Agentic AI systems, focusing on the probability estimation of rare events in both technical and societal contexts.
- Accompanying the research papers that are expected to be published in top conferences and journals, the research will also develop software tools and benchmark dataset.
- Attend project meetings, virtually or in-person, whenever needed.
- Effective collaboration with academic and industrial partners, to not only communicate research outcome but also integrate software tools for validation and demonstration.

In addition to the above, all University of Liverpool staff are required to:

- Adhere to all University policies and procedures, completing all obligatory training and induction modules, including Equality & Diversity and Health & Safety.
- Support the University's vision to drive forward environmental and social equity through delivery of our Sustainability Strategy and associated action plans.
- Demonstrate customer service excellence and continuous improvement in engaging with all stakeholders.
- Respect confidentiality: all confidential information should be kept in confidence and not released to unauthorised persons.
- Participate in the University's Professional Development Review scheme and take a proactive approach to own professional development.
- Embody and uphold the University's Vision and Values.
- Demonstrate flexibility in on-campus-presence to enable participation in business-critical activities, including reasonable participation in such things as: open days, invigilation, welcome week activities, confirmation and clearing and financial year-end activities.

About you

Experience
Essential 1. Relevant publication in (at least) one of the following areas: • Formal Methods and AI. • Neural-Symbolic AI. • Certification of Learning. • Runtime Monitoring or Guardrails of Learning Models. • Software Engineering for AI. • AI Alignment. 2. Expertise in the theory of probability and statistics, supported with relevant publications.
Desirable 1. Publication in top conferences of the above-mentioned areas (NeurIPS, ICML, ICLR, CVPR, ICCV, AAAI, IJCAI, ICSE, CAV, TACAS, ASE, etc) as the lead author.
Education, qualifications and training
Essential 1. Obtained, or about to obtain, a PhD in Computer Science or a closely related field.
Desirable 1. Undergraduate BSc Degree in Computer Science or a closely related field
Skills, general and specialist knowledge
Essential 1. Programming skills for AI/ML 2. Ability to write scientific reports and papers 3. Good interpersonal and communication skills 4. Good written English 5. Ability to disseminate results

Desirable

1. Experience in automated test generation, simulation-based testing, or falsification for autonomous driving, robotics, or other safety-critical systems.
2. Experience in cybersecurity defence or security evaluation of AI-enabled systems.
3. Familiarity with rare-event probability estimation techniques, such as importance sampling or multilevel splitting.
4. Experience in developing reproducible research software or benchmarks for evaluating generative or agentic AI systems.

Personal attributes

Essential

1. Ability and willingness to work as part of a team as well as in a self-directed and independent manner.
2. Enthusiasm and pro-activeness.
3. Collaboration with industrial partners to deliver excellent quality deliverables (code, report, demo, etc).

Desirable

1. Willingness to explore research questions beyond their existing area of expertise.
2. Demonstrated ability to acquire and apply new theoretical or technical knowledge independently.
3. A careful and critical approach to research, including identifying assumptions, limitations, and potential failure modes.

About us

Established in 1881, we are an internationally renowned Russell Group university recognised for our high-quality teaching and research. We are consistently ranked as one of the best universities both nationally and globally, and the majority of our research is rated world leading or internationally excellent. Find out more about us.

Why Work Here

We recognise, appreciate and celebrate the incredible work our staff do every day. As well as generous terms and conditions, we offer a range of enviable benefits and provide support for colleague's wellbeing and development. Discover more about working here.

Moving from abroad

As a global institute, we welcome applicants from all nationalities, moving from a different country can be challenging and we would like to help as much as we can, we have put together some information on eligibility to work documentation, accommodation, schools, healthcare, life in Liverpool and the UK as well as other practical information. Discover more about moving from abroad.

Our Staff

Whether it be their friendly colleagues, supportive managers or our outstanding facilities, our staff can explain better than anyone what it is like to work for us and why they enjoy their role. See what our colleagues have to say.

How to Apply

Application process

Our e-recruitment system enables you to register for an online account, where you can view, copy and edit your applications. Set up your account on our Vacancies Portal.

Once you submit your application you will receive an automatic email acknowledgment. You can view your application at any time by clicking into the application history section of your account.

The recruiting department will endeavour to respond to each application. However, if you have not heard within six weeks of the closing date, please take it that your application has not been successful on this occasion.

Job description

After the closing date this job description will be removed from our website. Should you wish to refer to this information at a later date please ensure you save a copy of this document.

Right to work

We have a legal responsibility to ensure that you have the right to work in the UK before you can start working for us. If you do not have the right to work in the UK already, any offer of employment will be conditional upon you gaining it. If the role is based outside the UK, you will need to demonstrate your right to work for the country in which you are to be based.

Disabilities and alternative formats

If you have any other requirements which will help you access the application or interview process or employment opportunities at the University, or if you require copies documentation in alternative formats, please email: jobs@liverpool.ac.uk or telephone 0151 794 6771.