



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Scientific Computing (with emphasis on Numerical Linear Algebra and High-Performance Computing), Faculty of Engineering and Physical Sciences



Salary: Grade 7 (£41,064 – £48,822 p.a.)

Reporting to: Massimiliano Fasi

Reference: EPSCP1177

Closing date: Wednesday 03 December 2025

Fixed term (until 31 August 2028 - to complete specific time limited work)

Location: Leeds main campus

We are open to discussing flexible working arrangements.

Research Fellow in Scientific Computing (with emphasis on Numerical Linear Algebra and High-Performance Computing), School of Computer Science.

Are you passionate about developing numerical algorithms or high-performance software for scientific computing? Do you have expertise in numerical linear algebra or experience with large-scale computing and want to broaden your skills? Would you like to play a role in making supercomputing more energy efficient?

We are seeking a **Research Fellow in Scientific Computing (with emphasis on Numerical Linear Algebra and High-Performance Computing)** to join the team of an EPSRC-funded project, *Mixed Precision in Krylov Subspace Methods (MPIK)*. The aim is to design mixed-precision algorithms to solve large-scale numerical linear algebra problems on next-generation supercomputing platforms.

As part of this role, you will develop new mixed-precision algorithms, analyse their behaviour, and implement them on the accelerator-based architectures that power the world's fastest supercomputers. Two of our project partners, the University of Tennessee and Valencia Polytechnic University, will support you in integrating these codes into three widely used HPC libraries: MAGMA, SLATE, and SLEPc.

You will collaborate with Environment and Climate Change Canada (ECCC), the Canadian meteorological office, to lead the integration of these new codes into next-generation weather and climate models.

This role offers the opportunity to undertake brief visits to partners in Canada, the US, and Spain, to publish in leading journals and present at major conferences, and to contribute to software that will have a lasting impact on the world of scientific computing. You will work on state-of-the-art HPC systems and collaborate with leading international experts, to ensure that your research has both academic and real-world impact.



Main duties and responsibilities

- Leading the development of new mixed-precision algorithms for large-scale numerical linear algebra problems and analysing their numerical behaviour;
- Designing and implementing high-performance software for these algorithms on modern accelerator-based architectures;
- Collaborating with international partners to integrate your implementations into widely used HPC libraries such as MAGMA, SLATE, and SLEPc;
- Working with Environment and Climate Change Canada to adapt and incorporate these algorithms into next-generation weather and climate models;
- Engaging in research visits with project partners in Canada, the US, and Spain to strengthen collaborations and accelerate technology transfer;
- Generating and pursuing independent and original research ideas in the appropriate subject area;
- Developing research objectives and proposals and contributing to setting the direction of the research project and team, including preparing proposals for funding in collaboration with colleagues;
- Evaluating methods and techniques used and results obtained by other researchers and to relate such evaluations appropriately to your own research;
- Making a significant contribution to the dissemination of research results by publication in leading peer-reviewed journals and by presentation at national and international meetings;
- Working independently and as part of a larger team of researchers, both internally and externally, to develop new research links and collaborations and engage in knowledge transfer activities where appropriate;
- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate;
- Contributing to the training of both undergraduate and postgraduate students, including assisting with the supervision of projects in areas relevant to the project.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.



Qualifications and skills

Essential

- A PhD (or have submitted your thesis before taking up the role, or close to completion) in numerical analysis, scientific computing, applied mathematics, computer science, or a closely related discipline;
- A strong background in either numerical linear algebra or high-performance computing, with a willingness to develop expertise in the other area;
- Experience in developing and implementing algorithms in a scientific programming language such as C, C++, Fortran, Julia, MATLAB, or Python;
- Good time management and planning skills, with the ability to meet tight deadlines and manage competing demands effectively without close support;
- A developing track record of high quality, publishable, original research outputs as appropriate for your career stage;
- Excellent communication skills both written and verbal, and the ability to communicate your research at national and international conferences;
- A proven ability to work well both independently and in a team;
- A strong commitment to your own continuous professional development.

Desirable:

- Experience of pursuing external funding to support research;
- Willingness and ability to travel for research visits and international conferences;
- Experience in developing mixed-precision algorithms;
- Familiarity with numerical error analysis;
- Advanced C++ programming skills, including experience with parallel programming paradigms such as CUDA, HIP, MPI, OpenMP, or SYCL;
- Knowledge of GPU architectures and performance optimization techniques;
- Experience contributing to open-source scientific software.

How to apply

You can apply for this role online; more guidance can be found on our [How to Apply](#) information page. Applications should be submitted by **23:59** (UK time) on the advertised [closing date](#).



Contact information

To explore the post further or for any queries you may have, please contact:

[Massimiliano Fasi](#), Lecturer in Software Engineering

Tel: +44 (0)113 524 1282

Email: M.Fasi@leeds.ac.uk

Additional information

Faculty and School Information

Further information is available on the research and teaching activities of the [Faculty of Engineering & Physical Sciences](#), and the [School of Computer Science](#).

Working at Leeds

We are a campus-based community and regular interaction with campus is an expectation of all roles in line with academic and service needs and the requirements of the role. We are also open to discussing flexible working arrangements. To find out more about the benefits of working at the University and what it is like to live and work in the Leeds area visit our [Working at Leeds](#) information page.

A diverse workforce

As an international research-intensive university, we welcome students and staff from all walks of life and from across the world. We foster an inclusive environment where all can flourish and prosper, and we are proud of our strong commitment to student education. Within the Faculty of Engineering and Physical Sciences we are dedicated to diversifying our community and we welcome the unique contributions that individuals can bring, and particularly encourage applications from, but not limited to Black, Asian and ethnically diverse people; people who identify as LGBT+; and people with disabilities. Candidates will always be selected based on merit and ability.

The Faculty of Engineering and Physical Sciences are proud to have been awarded the Athena SWAN [Silver](#) Award from the Equality Challenge Unit, the national body that promotes equality in the higher education sector. Our [equality and inclusion webpage](#) provides more information.



Information for disabled candidates

Information for disabled candidates, impairments or health conditions, including requesting alternative formats, can be found under the 'Accessibility' heading on our [How to Apply](#) information page or by getting in touch by emailing HR via hr@leeds.ac.uk.

Criminal Record Information

Rehabilitation of Offenders Act 1974

A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our [Criminal Records](#) information page.

Salary Requirements of the Skilled Worker Visa Route

Please note that this post may be suitable for sponsorship under the Skilled Worker visa route but first-time applicants might need to qualify for salary concessions. For more information, please visit [the Government's Skilled Worker visa page](#).

For research and academic posts, we will consider eligibility under the Global Talent visa. For more information, please visit [the Government's page, Apply for the Global Talent visa](#).

