



first light

Software Engineer Lead

Job Ref 109

Job Description

You will bring your experience and expertise in software engineering to ensure the quality of the numerical tools underpinning First Light's approach. We are looking for someone with a broad understanding and expertise in software engineering best practises, code design, and performance optimisation. You must be able to use that knowledge, in collaboration with theoretical and numerical physicists and engineers, to provide leadership and guidance to other software engineers and scientists within the team.

Our primary numerical physics capabilities include a fluid dynamic solver with a tree-based data structure at its core, and additional geometric libraries to treat material interfaces. This code is written in C++11, employing thread-based operator parallelism, and is exposed to the end user through a Python interface. We also develop a Fortran code that solves for electric and magnetic fields and the motion of material that those fields produce in a coupled way. This code runs in a distributed memory environment using MPI.

Both codes are coupled with several physics modules, including conduction, radiation and microphysics models, which aim to be readily expandable and interchangeable. The codes are core to the business plan and a very important company asset. You will provide invaluable leadership towards high-level software architecture and design decisions, which is critical to the goals of the numerical physics team.

The team takes an agile approach to project management and planning. The Atlassian toolset is employed to both our software-based projects and our continuous integration and quality assurance frameworks.

This is a line-management position, but hands-on development work will also be expected. In addition to software development tasks, the responsibilities of the team reporting to you include software quality assurance, continuous integration, code deployment, data management, and ad hoc technical support to the wider team.

Essential

- A degree in a relevant technical discipline
- Experience of hydrodynamic/CFD software development
- Demonstrated leadership in software engineering of complex systems
- A proven track record of providing robust software design that is straight-forward for other developers to work with
- Expert level C++
- Experience designing software for distributed high-performance computing platforms
- Experience of successful personnel management
- A deep understanding of software engineering best practise and testing methodologies

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- A willingness to promote high coding standards across the numerical physics team
- A proven track record of successfully planning and executing software development projects
- Strong communication and interpersonal skills

Desirable

- A PhD in a relevant subject
- Fluency in Python
- Fluency in modern Fortran standards
- Previous team/group line management experience
- Knowledge of the HPX runtime environment and MPI

Benefits

- Very competitive salary
- 25 days annual leave (increasing to 28 with time in service) + bank holidays
- 8% employer pension contribution without matching requirements
- Relocation support
- Flexible working
- Generous share options scheme
- Free lunch and soft drinks
- Enhanced maternal / paternal leave
- Enhanced sick leave

Additional information

How to apply

Please send your application and CV to careers@firstlightfusion.com quoting the job title in the subject. If you don't hear back from us within four weeks, it means that unfortunately your application was unsuccessful at this time.

Informal enquiries may also be addressed to careers@firstlightfusion.com.

The interview process

We typically carry out two separate interviews, each one about sixty to ninety minutes long. The first one aims to understand how your skills match what is required for the job and the discussion will be focused on your areas of expertise. If successful, you will be invited to the second interview, which is more focused on your personal skills, and how your objectives align with the company mission and values. We try to understand the value you will add to First Light, and how you can thrive and be happy with us. There will be opportunity to ask us as many questions as you like.

If you are invited to the second interview, it's probably time to warm up two of your referees, as we may ask you to put us in touch with them. If you are the successful candidate, we will send you an offer letter and, once agreed, a contract.

If you are invited to an interview, we will certainly get back to you to let you know the

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outcome.

To help with logistics issues, we can arrange so that the two interviews are organised on the same day. We will also reimburse reasonable expenses you incur to come to talk to us.

We don't have a dress code at First Light and regardless of seniority there is a good mix of t-shirts, trainers, shirts and blazers. For your interview, please dress in whatever makes you feel most confident and comfortable.

[Our commitment to equality, diversity and inclusion](#)

We are a small company with a huge mission. The only important aspect for the team, and for each individual, is the contribution they can make. Our selection process and requirements for career progression disregard gender, gender identity, race, disability, colour, religion, and all other aspects of diversity that make us all humans. Diverse teams have been proven to be better and we strongly believe it. We're not perfect but we strive to be.

[Information for recruiters](#)

We work with a trusted network of recruiters, therefore CVs sent by other recruitment agencies will not be considered. In the event that the company receives a CV from both the direct applicant and a recruitment agency, the CV will be treated as a direct application by the individual only. Unsolicited contact from recruitment agencies will be disregarded.

First Light Fusion

We are a lean, focused and agile company researching energy generation by inertial confinement fusion. We spun out from the University of Oxford in June 2011 and are based near Oxford. First Light continues to work closely with the academic community, both in the UK and internationally. The company is well-funded by both institutional investors and private individuals.

Inertial confinement fusion for energy generation is a well-established research field and is being pursued in many laboratories worldwide, perhaps most notably in the US at the National Ignition Facility. We are exploring a number of alternative research directions that harness the same fundamental physics, with the prime focus being power generation. Our work to-date has included theoretical analysis, detailed numerical simulation, and experimental validation. We have an increasingly clear vision of the pathway to a power plant.

We really believe fusion will be solved in the 2020s. If it's solved by us, fantastic, if it's solved by someone else, still great.

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