



first light

Scientist – Data-Driven Engineering Job Ref 165

First Light Fusion

We are First Light Fusion, the UK's inertial fusion company.

Our mission is to work with the world's leading fusion companies to accelerate the commercialisation of fusion energy - the last clean energy source the world needs.

We do this by radically reducing the complexity and power demands of tomorrow's fusion power plants using our unique amplifier technology and sophisticated simulation capabilities. Developed through our pioneering work in inertial fusion, they now can transform the feasibility of a range of fusion technologies. Together, we are working to bring the dawn of the age of fusion power far closer to today.

Job Description

Role Purpose

We are looking for a skilled and experienced scientist or engineer to help develop our unique hydrodynamic amplifier and inertial fusion target technology.

In this role, you will develop our amplifier technology for use in fusion targets as well as in novel material and impact testing applications. You will work with a highly skilled team of scientists and engineers taking a simulation-led development approach using our in-house developed hydrocodes and accelerated using latest AI & ML tools. Additionally, you will further develop the team's simulation and AI & ML tools, improving the development cycle.

First Light Fusion operates with its own experimental and manufacturing facilities, enabling us to move quickly and innovate. This will allow your ideas to progress from a basic concept to a working experiment over a short period of time. To facilitate this, you will collaborate across the company, using your expertise to ensure that targets are designed, manufactured, and fielded on experiments in a way that maximises performance. You will also act as a source of knowledge and experience, that other employees within the company can draw on when pursuing their own ideas.

First Light Fusion Limited

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Accountabilities and deliverables

- Use our in-house hydrodynamic and magnetohydrodynamic codes to invent new targets and develop current ones, aiming to achieve the highest possible pressures, velocities and fusion yields from First Light Fusion's driver machines.
- Run simulations to understand in-depth the dynamics and physical processes at work within our targets.
- Use AI & ML tools to analyse results of ensembles of simulations, identify trends and perform numerical optimisation.
- Provide specialist technical support and training, aiding other employees at First Light Fusion to develop their own target designs and interpret their results.

Essential

- PhD in a STEM subject, or equivalent industry experience.
- Knowledge of Fluid Dynamics and experience in Computational Fluid Dynamics (CFD) simulation.
- Proven track record of using simulation tools to design and develop complex, multiphysics based systems.
- Ability to work effectively as part of a multidisciplinary team.
- Strong communication and interpersonal skills.
- Good programming skills.

Desirable

- Knowledge of high energy shock physics or inertial fusion physics.
- Experience developing fusion target designs for experiments on international facilities.
- Experience in Magnetohydrodynamics (MHD) simulation and modelling.
- Experience with Machine Learning and other advanced optimisation methods.
- Knowledge of Software Engineering good practice.
- Experience using High Performance Computing systems.
- Understanding of the numerical methods used in hydrodynamics codes.
- Programming experience in Python, C++ or Fortran.

Package

- Competitive salary
- 25 days annual leave + bank holidays (holiday increase based on service)
- 40 hour working week



- Office based in Oxford (flexible working options may be available on request)
- Free lunch, snacks and soft drinks
- Cycle to work scheme
- Electric vehicle scheme
- 8% employer pension contribution without matching requirements

