Graduate Physicist / Engineer

Full time £30,000+, depending on experience and skills

Background

Synbiosys is a 3 year old startup based in White City, London. Our board of advisors includes senior management from Defence Primes, as well as government National Security leaders. We are revolutionising the armour paradigm, and pushing forward a new way of thinking about, and testing, high performance materials in extreme conditions. We have government-funded R&D projects to develop our technologies, and are also working with Primes to better understand their materials.
We work in non-standard and not-yet-understood areas of materials science, pushing the boundaries of fundamental knowledge and characterisation techniques.

Job description

We are looking for a graduate-level physicist or materials engineer, with an emphasis on numerical/modelling abilities to a) help us on our path to revolutionise the armour industry with our phase change armour technology, and b) support our material characterisation services.

You will be working as part of a small team providing numerical modelling, simulation and experimental data analysis to all stages of material composite design, manufacture and testing processes.

For both our and our clients' materials, you will be required to produce FEM models on Abaqus, and optimise models using impact test data from Split-Hopkinson Pressure Bars, single stage Gas Guns and live fire ballistic ranges.

We require a dynamic individual capable of learning new techniques and science quickly to help drive forward our developments. Abilities in numerical optimisation techniques and fundamental materials science knowledge are ideal. You must have the understanding to build an accurate

material model and know how to investigate the limits of the model in various simulation scenarios.

Duties and responsibilities

We need a highly motivated physicist, material scientist or engineer with a solid ability to think critically and to solve really hard problems. Working on exciting research-lead projects, you will be expected to:

- Provide a leading role in running numerical simulations to characterise novel materials. This includes both the scientific methodology as well as providing key insight into the experimental design and validation measurements.
- Analyse data from experiments using Python, and integrate into optimisation routines to improve numerical simulation accuracy.
- Contribute to the design of prototype armour composites through Shock and Finite Element Models.

Our current needs

Currently we have projects which require the use of Abaqus Finite Element Method (FEM) simulations, as well as a Python optimisation library. Experience in any of these is valuable. Most importantly, as a startup our requirements evolve with time, a desire to expand your skillset and to be proactive with your personal development is critical.

Skillset Requirements

Essential Skillset:

- Be a graduate or have equivalent industrial experience in the field of numerical modelling of materials.
    - Example areas include, and are not limited to, materials science, computational physics, geology, aeronautical engineering.
    - Optionally a Masters degree such as Applied Computational Science and Engineering.
- You must show a track record in understanding and learning the fundamentals of new science and new techniques quickly.
- A demonstrated ability to design numerical models and implement simulations using the Finite Element Method (FEM).
- Computer programming experience for data analysis, modelling and simulation. For example Python, C++, Matlab.
- Experience working in a team.
- Proactive in learning new skills as requirements change.

Desired Skillset:

- Any dynamic material modelling experience for example:
    - Crash worthiness and impact simulation
    - Fracture mechanics
    - Oil & Gas exploration
- We are particularly interested in candidates with experience of modelling soft materials in compression.
- Machine learning or other algorithmic optimisation strategies.
- Training a neural network.

Working at Synbiosys

We're a dynamic, happy and hugely supportive team. We give everyone the space to think and operate independently, and provide a high level of freedom and accountability. We don't track time spent working, and instead focus on milestones and keeping to delivering them on time. How you organise yourself will be up to you.

We support and push for personal and professional developments and will happily support you in the form of building up a library of reading material and contributing to development courses.

We're committed to a good work/life balance, and there is - Covid notwithstanding - the opportunity to enjoy regular company socials (we are close to Westfield, Portobello Market, etc). Some of our team members' hobbies are climbing, trampolining, skydiving, DJing, reading and gaming.

How to Apply

If you are interested in this position, please email your CV and a short cover letter to jobs@synbiosys.co, with the subject title "Graduate Physicist / Engineer" and we will be in touch.